EXACTRAC
HIGHLY ACCURATE PATIENT MONITORING
ExacTrac is an in-room based monitoring system that detects intra-fractional motion during treatment delivery. Two kV X-Ray units and a proprietary 6D fusion provide fast and highly accurate positioning information at the time of treatment, even at non-coplanar fields. Any deviations in the patient’s position that exceed a prescribed tolerance are immediately displayed to the user.
ExacTrac X-Ray Monitoring provides clinicians with a unique insight into the patient position during treatment delivery. The possibility for internal verification during treatment reduces the potential for geographical miss as a result of patient motion, or internal anatomical shift. This also provides the clinician with confidence that the prescribed treatment has been delivered accurately and safely.
ExacTrac X-Ray Monitoring compliments existing IGRT solutions by offering the possibility to detect intra-fractional motion. This is not possible with a linac based IGRT system alone, especially at non coplanar fields. ExacTrac X-Ray Monitoring continuously verifies the patient’s position as defined by the linac based IGRT system throughout the entire treatment delivery.
ExacTrac Frameless Radiosurgery system offers highly accurate delivery of single or multiple fractionated treatments without the need for a conventional head ring. A patient friendly head to shoulder mask facilitates a streamlined workflow, overcoming the restrictions of frame based radiosurgery and improving scheduling flexibility for imaging, planning, and treatment.

Stereotactic sub millimeter precision can be achieved with the patient’s skull serving as the localization geometry, allowing for single fraction radiosurgery. The ExacTrac frameless system with its three piece, non-invasive mask is compatible with couch tops from multiple vendors.
Efficiency is an important attribute for any IGRT system, especially given the ever growing patient demand on radiation therapy departments. One method to improve efficiency is to provide a more automated means to patient setup.

Optional automatic patient positioning packages may be added to ExacTrac X-Ray Monitoring to allow the patient to be positioned directly from the control area. Positioning packages improve efficiency by minimizing the need to enter the treatment room between fields reducing the overall treatment setup time.

Positioning packages are available for either 4D or full 6D robotic alignment.
ExacTrac is a fully integrated solution on both Elekta and Varian linacs resulting in a seamless clinical workflow which is fast, safe and highly accurate, and allows the possibility to detect intra-fractional motion.

ExacTrac software guarantees that the same patient is automatically loaded on ExacTrac and the linac, and is furthermore compatible with ARIA and MOSAIQ®. Deviations in the patient’s setup position can be automatically corrected from the control area via the Varian Couch, Elekta Hexapod™ or Brainlab Robotics, removing the need to enter the treatment room between fields.

ExacTrac also offers a range of benefits to extend the capabilities of the Siemens linac. It allows for a quick and efficient setup of cranial and extra cranial cases and the ability to detect intra-fractional motion. If the Siemens linac is to be replaced by a Varian or Elekta linac at a later date, the room based ExacTrac can be refitted.
ExacTrac is a versatile system which not only allows the setup or patients with cranial or head and neck indications but also lesions in the lung, liver, prostate and other organs. In these indications there may be difficulty visualizing the tumor, or the need to compensate for tumor motion due to respiration or random motion. In this situation fiducial markers may be implanted prior to treatment.

ExacTrac offers a simple, automated approach to visualize, detect and register implanted markers using a proprietary software solution and 6D fusion. ExacTrac supports a wide range of implanted fiducials such as short and long grains, stents and surgical clips.
The Volume of Interest (VOI) tool improves clinical confidence by allowing the user to focus the fusion on the most relevant parts of the patient’s anatomy which most closely relate to the target. Areas of anatomy that may not correlate well to the target such as the ribs, adjacent vertebrae or other non-rigid objects can be excluded from the 6D fusion ensuring precise patient setup.

The VOI defined is automatically used for subsequent imaging and helps ensure a consistent fusion resulting in highly accurate patient positioning.