

Protura™ Robotic Patient Positioning System

Frequently Asked Questions



Why Robotics?	Utilizing a robotic couchtop enables a cancer care clinic to deliver more accurate and efficient radiation treatments. With a robotic couchtop, rotational adjustments in patient positioning can be corrected in all directions to ensure precise dose delivery to the target area, increasing the ability to optimize dosage while sparing the surrounding healthy tissue. These adjustments are also performed outside the treatment room, thus improving the workflow and repositioning efficiencies.
What is the Protura Robotic Patient Positioning System?	Protura is a six degree of freedom (6D) robotic couch which attaches between the linear accelerator pedestal and the CIVCO Universal Couchtop™. The Protura accepts patient correction values as derived in your IGRT system, and applies these 6D shifts to the patient position with sub-millimeter accuracy.
Which couchtops are compatible with Protura?	<ul style="list-style-type: none">• CIVCO Universal Couchtop Long Extension (UCT LE)• CIVCO Universal Couchtop 1 Piece (UCT 1 piece)
What is Protura range of motion?	<p>The Protura range of motion is dependent on the magnitude of all 6 degrees of freedom shifts and the location of isocenter relative to Protura. Since all rotations occur around isocenter, moving this rotation point away from the Protura will decrease the rotational limits due to the mechanical limitations of the system.</p> <p>The single directional move limitations are Longitudinal +/-50 mm, Lateral +/-25 mm, Vertical +/-25 mm, and rotations accept +/-5 degrees. In clinical practice, Protura is typically capable of +/-2 to 3 degree rotations.</p>
Protura is compatible with what linear accelerators (linac)?	<p>The Protura Robotic Patient Positioning System is approved for attachment to Varian Exact pedestals, Elekta Precise pedestals, and Siemens TXT pedestals.</p> <p>The Protura system is not approved for attachment to the Varian TrueBeam linac.</p>
What is Protura weight capacity?	<p>Protura is approved to support 440 lbs (200 kg).</p> <p>When attached to the Varian Exact pedestal, the Protura weight limit is reduced to 359 or 372 lbs (163 or 169 kg) when using the UCT LE or UCT 1 piece respectively.</p>
What is the Protura accuracy and resolution?	Accuracy: Sub Millimeter Resolution: 0.1 mm & 0.1 deg

What is the Protura™ height?	Zero position (pre-shift): 20 cm	Load/Unload position: 15 cm
What is the workflow using Protura?	<ul style="list-style-type: none"> • Patient opened in Protura software (automatic if software interfaced) • With Protura in Load/Unload position, immobilize patient on the couchtop • Move Protura to Zero position, and align patient to room isocenter • Enter couch coordinates into Protura (automatic if software interfaced) • Perform preferred IGRT method to obtain 6D correction values • Enter correction values into Protura system (automatic if software interfaced) • Press Move in Protura to apply correctional shifts and enter treatment mode • Perform treatment • Exit treatment mode and select Load/Unload in Protura to close patient & lower robotic couch • Treatment complete, patient exits treatment vault 	
How does Protura report the corrections performed for patient treatments?	The user is able to generate patient reports for any shift performed by Protura. A PDF is generated and can be saved according to the site protocol.	
How much time do we need to allow for installation? What is the installation procedure?	<p>Protura installation is performed with no downtime for the clinic. For example, a typical installation is performed over a weekend:</p> <ul style="list-style-type: none"> • Friday - Protura Installation (12-15 hrs) • Saturday - Protura Installation (cont.) • Sunday - Site acceptance QA testing (2-4 hrs) • Monday - Site training with Dosimetry & Physics (1-2 hrs) & Therapists (2-3 hrs) • Tuesday - CIVCO Clinical Applications on-site support • Wednesday - CIVCO Clinical Applications on-site support 	
How often should Protura Quality Assurance (QA) be performed? What QA is needed?	<p>Quarterly and/or during any software interface update.</p> <ul style="list-style-type: none"> • Mechanical Maintenance with Automated Test Procedure ~5 minutes • Isocenter Alignment with pedestal position ~15 minutes • Localization Accuracy with verifying Protura shifts ~60-90 minutes 	
What software interfaces are available with Protura? What do they provide?	<p>Varian (4D-ITC, OBI, ARIA or MOSAIQ): Auto Patient, Pedestal, Shift Import Elekta (MOSAIQ, iCOM, XVI): Auto Patient, Pedestal, Shift Import Camera System (AlignRT): Auto Patient, Pedestal (as sent from camera system), Shift Import</p>	