

# 6DOF ISO Base™

Model 023-08



## USER GUIDE

**CIRS**

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## OVERVIEW

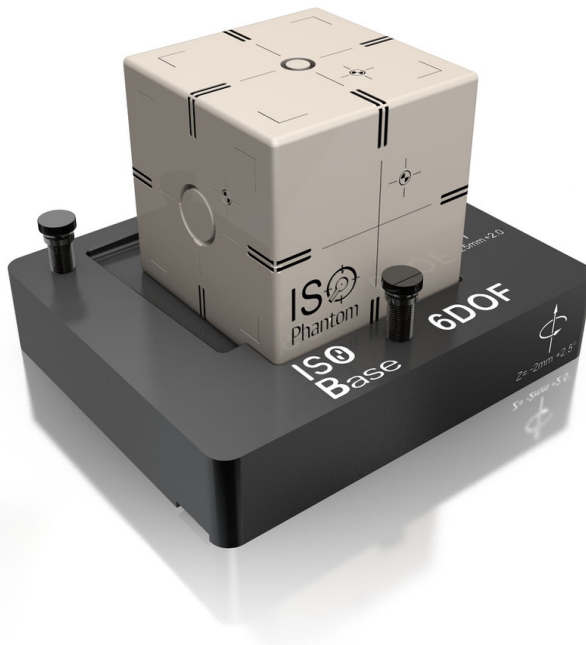
The CIRS 6DOF ISO Base, Model 023-08 is an optional accessory of ISO Cube. It is designed for positioning and leveling of ISO Cube and quick calculation of complex 3D shifts of RT treatment systems with an integrated robotic couch.

There are two milled pockets on the CIRS 6DOF ISO Base. The ISO alignment pocket can be used to position and level the ISO Cube™ on the treatment couch. It contains a set of four Tungsten spheres that are used by ISO Analyze™ Software to calculate the actual Pixel Size for both the MV and kV image detectors.

When positioned in the shifted 6DOF pocket, internal structures of the ISO Cube allows for the calculation of rotation and translation shifts. The shifted 6DOF pocket is machined with the mechanical limits of commercially available couches in mind, which can correct for Pitch, Roll and Yaw of +/- 3 degrees of rotation. The 6DOF pocket is rotated within the IEC 61217 Coordinate System, +1.5° about X-axis, +2.0° about Y-axis and +2.5° about Z-axis and translated -15 mm on X-axis, +25 mm on Y-axis and -2 mm on Z-axis. The translations about the X, Y and Z-axes are applied with respect to the ISO center of ISO Cube. Having rotational shifts smaller than the mechanical limits of the robotic couches allows the user to determine if there are errors on either side of the induced shift.

Both the ISO alignment pocket and the 6DOF pocket are CNC machined in a single setup. The 6DOF ISO Base is also assembled as a single piece to minimize cumulative assembly errors.

**Note: Feet are adjustable, but not removable.**

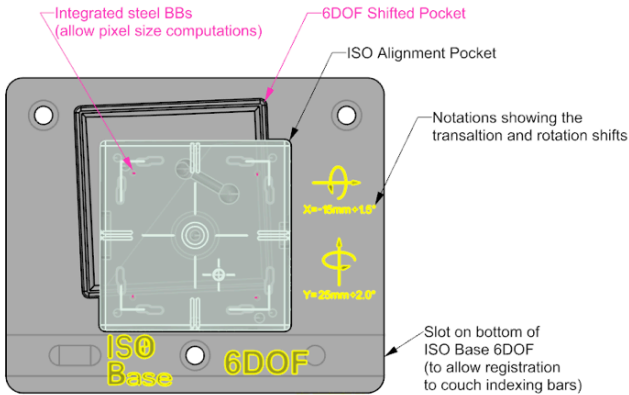


## USE OF THE 6DOF ISO BASE™

To check the 6DOF shifts the following procedure is recommended:

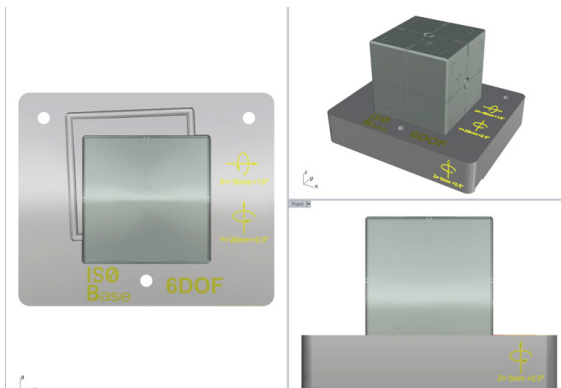
### 1. Acquire Image Reference Set

Align the ISO Cube to the imaging system that is to be used to acquire the image reference set. To do this, place the ISO base on the couch of the imaging system (CT) and register it to an indexing bar. Use a high quality spirit level and level it. Place the ISO Cube in the ISO alignment pocket.



### 2. Transfer Reference to R&V

Once the reference image set is acquired, the user can make a plan, simulation CT and DRRs based on it and transfer them to the R&V software suite for creation of a daily imaging QA patient.



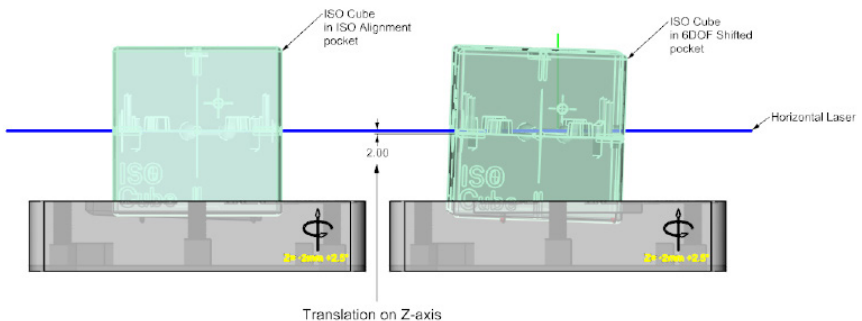
### 3. Daily QA Shifts Setup

For daily QA checks of the DOF shifts the 6DOF ISO base is registered to an indexing bar of the Linac couch and leveled. The ISO Cube is then placed in the ISO alignment pocket and the whole assembly is aligned to the Linac's light field and lasers by translating only the couch about the orthogonal axes. Providing that the MV and kV pixel size is to be calculated acquire the corresponding planar images that were defined in the ISO Analyze software for these two parameters. Remove the ISO Cube from the ISO Alignment pocket and carefully place it in the 6DOF shifted pocket. Make sure the ISO Cube rest firmly against the bottom of the 6DOF shifted pocket and against the sides of the deepest corner of this pocket.



### 4. 6DOF Shift Calculations

Apply the translational shifts on each axis with the opposite value shown on the 6DOF ISO Base and then rotate the couch  $-2.5^\circ$  about Z-axis,  $-2^\circ$  about Y-axis and  $-1.5^\circ$  about X-axis. Take images of the ISO Cube and perform 2D/3D kV/Mv image matching. The difference between zero and the actual values for each individual shift shown after 2D/3D kV/Mv images match should be within the setup tolerances.



## **WARRANTY**

All standard CIRS products and accessories are warranted by CIRS against defects in material and workmanship for a period as specified below. During the warranty period, the manufacturer will repair or, at its option, replace, at no charge, a product containing such defect provided it is returned, transportation prepaid, to the manufacturer. Products repaired in warranty will be returned transportation prepaid.

There are no warranties, expressed or implied, including without limitation any implied warranty of merchantability or fitness, which extend beyond the description on the face hereof. This expressed warranty excludes coverage of, and does not provide relief for, incidental or consequential damages of any kind or nature, including but not limited to loss of use, loss of sales or inconvenience. The exclusive remedy of the purchaser is limited to repair, recalibration, or replacement of the product at manufacturer's option.

This warranty does not apply if the product, as determined by the manufacturer, is defective because of normal wear, accident, misuse, or modification.

### **NON-WARRANTY SERVICE**

If repairs or replacement not covered by this warranty are required, a repair estimate will be submitted for approval before proceeding with said repair or replacement

### **RETURNS**

If you are not satisfied with your purchase for any reason, please contact your local distributor prior to returning the product. Visit <https://www.cirsinc.com/distributors/> to find your local distributor. If you purchased your product direct through CIRS, call Customer Service at 800-617-1177, email [rma@cirsinc.com](mailto:rma@cirsinc.com), or fax an RMA request form to 757-857-0523. CIRS staff will attempt to remedy the issue via phone or email as soon as possible. If unable to correct the problem, a return material authorization (RMA) number will be issued. Non-standard or "customized" products may not be returned for refund or exchange unless such product is deemed by CIRS not to comply with documented order specifications. You must return the product to CIRS within 30 calendar days of the issuance of the RMA. All returns should be packed in the original cases and or packaging and must include any accessories, manuals and documentation that shipped with the product. The RMA number must be clearly indicated on the outside of each returned package. CIRS recommends that you use a carrier that offers shipment tracking for all returns and insure the full value of your package so that you are completely protected if the shipment is lost or damaged in transit. If you choose not to use a carrier that offers tracking or insure the product, you will be responsible for any loss or damage to the product during shipping. CIRS will not be responsible for lost or damaged return shipments. Return freight and insurance is to be pre-paid.

### **WITH RMA NUMBER, ITEMS MAY BE RETURNED TO:**

CIRS  
Receiving  
900 Asbury Ave,  
Norfolk, Virginia, 23513 USA

<b>PRODUCT</b>	<b>WARRANTY PERIOD</b>
Model 023-08 6DOF ISO Base™	60 Months



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