

### SECO Offers Three Tribrach Models: Basic, Standard and Precision

#### BASIC: 2152-04-BLK, 2153-04-BLK, 2153-02-BLK

- ▶ Common design of mechanical parts
- ▶ Tension on leveling screws and base plate adjustable by user or repair shop
- ▶ Requires regular maintenance of adjustments to provide consistent stability
- ▶ Torsional rigidity: not rated
- ▶ Made in China



#### STANDARD: 2152-07-BLK, 2153-07-BLK

- ▶ Modern design to improve stability
- ▶ Pre-loaded leveling screw tension that does not need adjustment
- ▶ Leveling screw bushings are bonded into upper body, cannot come loose
- ▶ Fixed adjustment on plate that holds leveling screws to base plate
- ▶ Aircraft quality materials and lock-tite used on all threads
- ▶ Tested on collimator stand to confirm torsional rigidity
- ▶ Torsional rigidity: rated <2 arc second
- ▶ Easy-to-remove optical plummet assembly or upgrade from non-OP to OP
- ▶ Made in Hungary



#### PRECISION: 2152-06-BLK, 2153-06-BLK

- ▶ Same as standard but with added tension plate at each leveling screw to hold leveling screw pivot point in all directions
- ▶ Hardened material in leveling screw contacts to minimize wear
- ▶ Waterproof cap on leveling screws
- ▶ Orientation spring to ensure instrument or accessory is always positioned into same position in tribrach
- ▶ Tested on collimator stand to confirm torsional rigidity
- ▶ Torsional Rigidity: Rated <1 arc second
- ▶ Made in Hungary

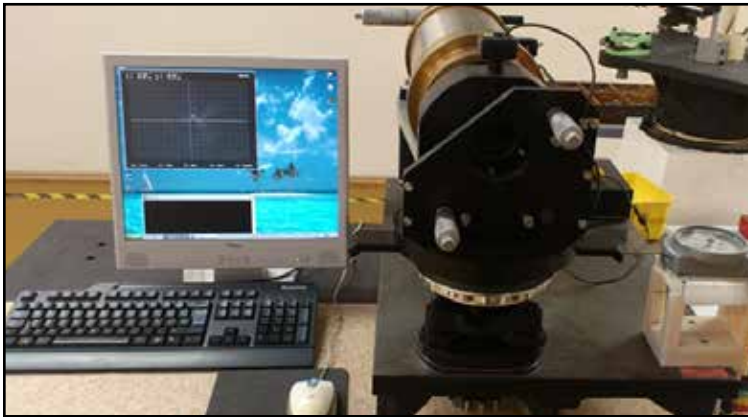


SECO tribrachs, made in Hungary, are tested for torsional rigidity (hysteresis). Tests use a JDSU Helium-Neon laser as a light source behind an optical collimator tube. Next to the laser there is a CCD camera which is able to catch the reflected light. On the other end, a laser mirror is connected to the tribrach. The hysteresis collimator measures the difference between the reference laser and the reflected laser beam. A software application shows the difference and counts the hysteresis value. The precision to which the tribrach returns to the original position is known as hysteresis. The Standard tribrach models are rated <2 arc seconds and the Precision models are <1 arc second. See the procedure on the next page.

### Hysteresis Testing Procedure

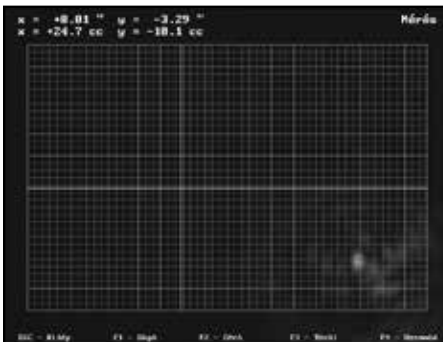
#### 1. Tribrach connected to testing equipment

The position is set to zero.



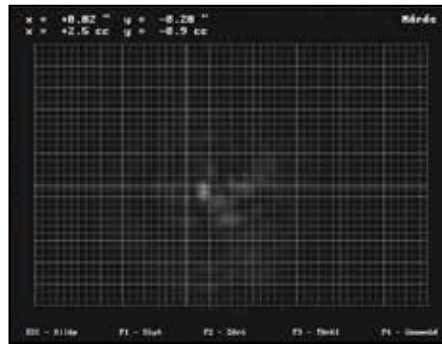
#### 2. Measurement of torque to the right

The software represents position as the measuring adapter is forced to the right with an exact torque (below left). The horizontal (x) movement is measured at 8.01 arc seconds (below right). This movement includes the suspension so it is not yet the hysteresis value.



#### 3. Hysteresis measurement to the right side

After stopping force with an exact torque, the suspension moves the tribrach back close to the original position. The difference between the original position and the actual position is the hysteresis and you can see (below right) that the amount of horizontal (x) movement is now 0.82 arc seconds — a good number. SECO guarantees that the hysteresis is lower than 1.0 arc seconds on the Precision tribrachs from Hungary.



#### 4. Repeat procedure to the left side

Repeat steps 2 and 3 but with the left side.



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