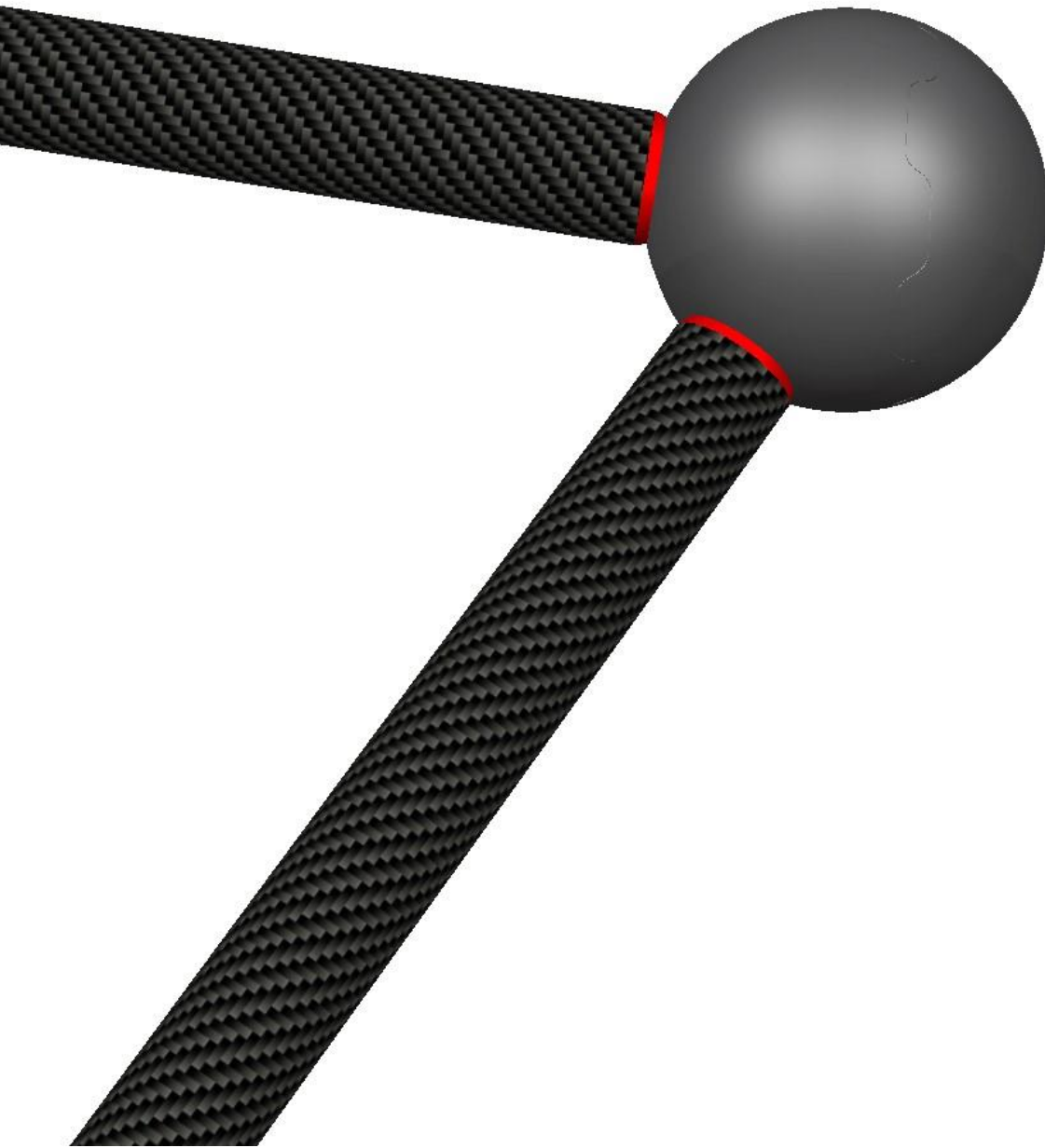


# *User Manual*





## INTRODUCTION

Congratulations on receiving your TETRAFIX patented carbon fibre fixture. The fixture has been developed to reduce the overall cost of geometry assurance by offering reliable measurement results and high productivity over the fixture lifetime.

The TETRAFIX solution is built upon a very rigid and self-stable carbon fibre framework design with three feet. The design creates a stable ergonomic light-weight fixture that may be used on any surface and in any environment. A combination of unique frameworks and carbon fibre results in negligible thermal expansion which in turn result in stability over time independently of environment.

All fixtures are precision elements and should be handled with care. This document gives an introduction of how to handle the fixture for optimal lifetime and quality.

If you encounter any problems with your fixtures or have any enquiries, please contact:

**+46 303 59 380**



## HANDLING

### STORAGE

When not used, fixtures should be stored on its feet, wheels or storage pads (when applicable) in a dry environment.

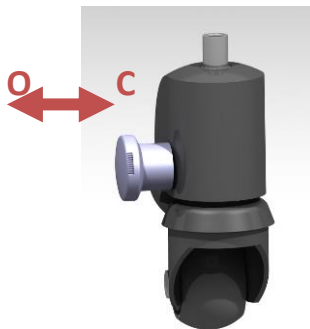
Storage in a box is advisable

### LIFTING

The fixture should be lifted in the designated lifting loops when handled with a crane, truck or equivalent equipment.

Be careful not to have the fixture fastened to the baseplate or storage box when lifting the fixture.

### LIGHT WHEEL SYSTEM



The light wheel system is our most common wheel system.

To expand the wheel, simply assure that the level is in position C, gently lift the fixture and the wheel will expand into place.

To collapse the wheel, hold the fixture (so it does not collapse with its own weight), put the level in O position and lower the fixture gently to the ground. Repeat for each of the three wheels.

### WHEELBARROW FIXTURE

The wheelbarrow system does not need any operation of the wheels, simply lift in the other side of the fixture until the wheel touches the ground and operate the fixture as a wheelbarrow.

### HEAVY WHEEL SYSTEM



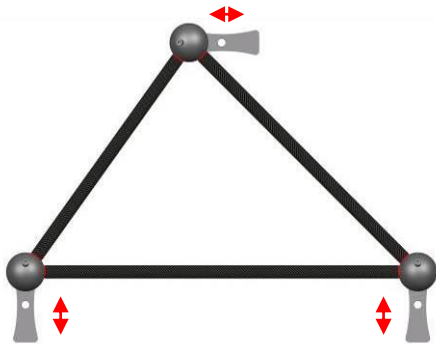
The heavy wheel system are used in our heavier fixtures and uses a bigger wheel. The wheel system works like a click pen which almost eliminates the handling.

Simply lift the part of the fixture where the wheel is located, lower it and the position of the wheel is change to active. Lift and lower the fixture again to deactivate the wheel.



## MEASURING

### FIXATION TO BASEPLATE

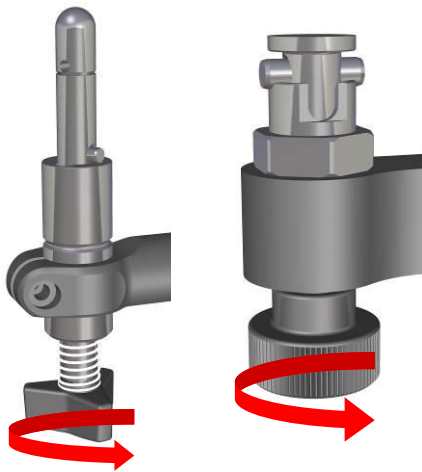


TETRAFIX fixtures have three feet. All of them must be attached to the baseplate with fitted bolts to lock the fixture in all directions.

TETRAFIX uses a 2-2-2 alignment as standard towards the baseplate.

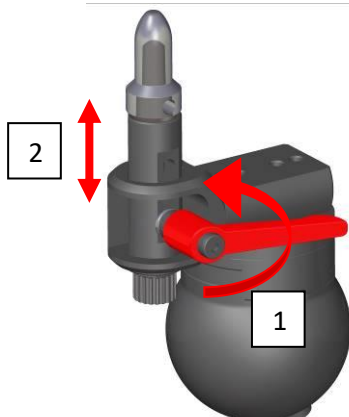
Torque for fitted bolts: 12 Nm

### COLLAPSIBLE REFERENCES



To measure in free state, collapse a support by twisting it and it will fall down.

To reactivate the support, push the support into position and rotate to lock.



To measure in free state, collapse a support by:

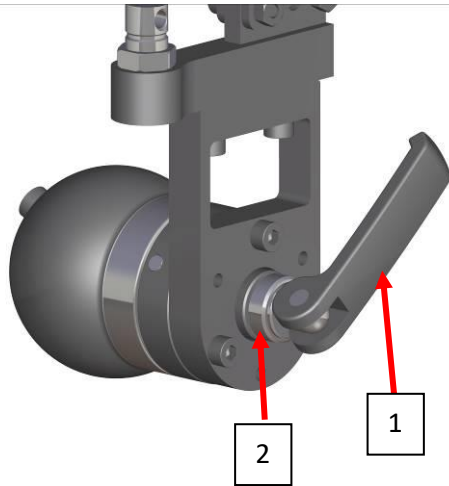
1. Loosen the level.
2. Push the guide pin down.

To reactivate the support, push the support into position (2) and tighten the level to lock (1).

Torque for level: 2,5 Nm



## FOLDABLE SUPPORT - 120



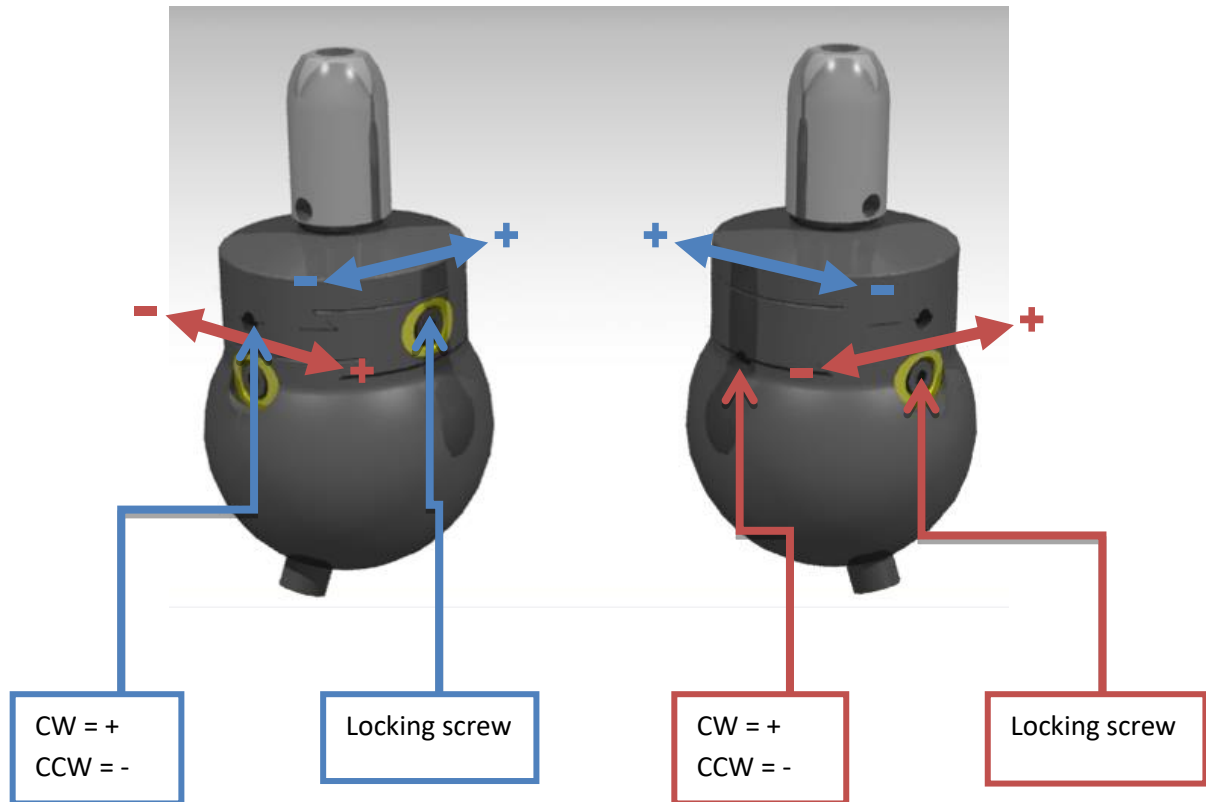
The foldable support may be used to collapse a reference point or to alternate between different reference points.

To change, open the handle (1) and rotate the support 120 degrees into desired position.

Do not rotate the handle (1) as this will change the tension. To increase or decrease tension of the handle, adjust by turning the small wheel (2).

## CALIBRATION

### ADJUSTMENT OF 2-DIRECTION SHIMSBOX



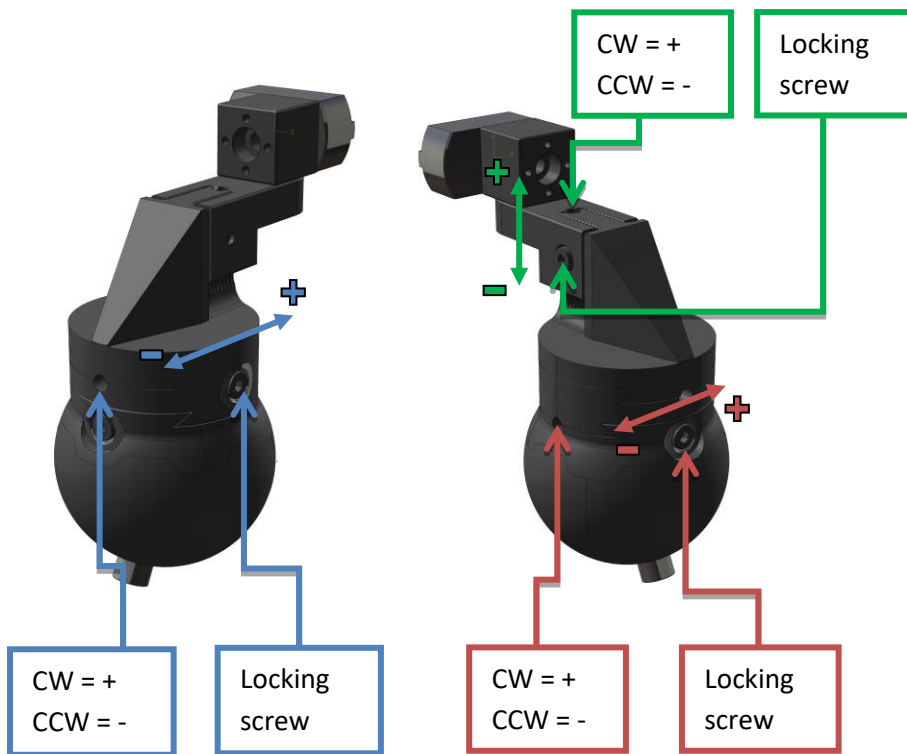
Adjustments are made with a 3mm Allen key and the screw has a 1mm pitch so that one turn equals 1mm in the desired direction.

Adjustment is carried out in each individual direction in the following steps:

- To get rid of the play in the adjustment screw; just turn it gently in the direction you want to adjust in, without loosening the locking screw, until it stops. Now the play is gone
- Loosen the locking screw
- Turn the adjustment screw in the desired direction (1mm = 1 rev)
- Tighten the locking screw
- Make sure to repeat the first step when changing the adjustment direction

Torque for locking screw: 1,5 Nm

## ADJUSTMENT OF 3-DIRECTION SHIMSBOX



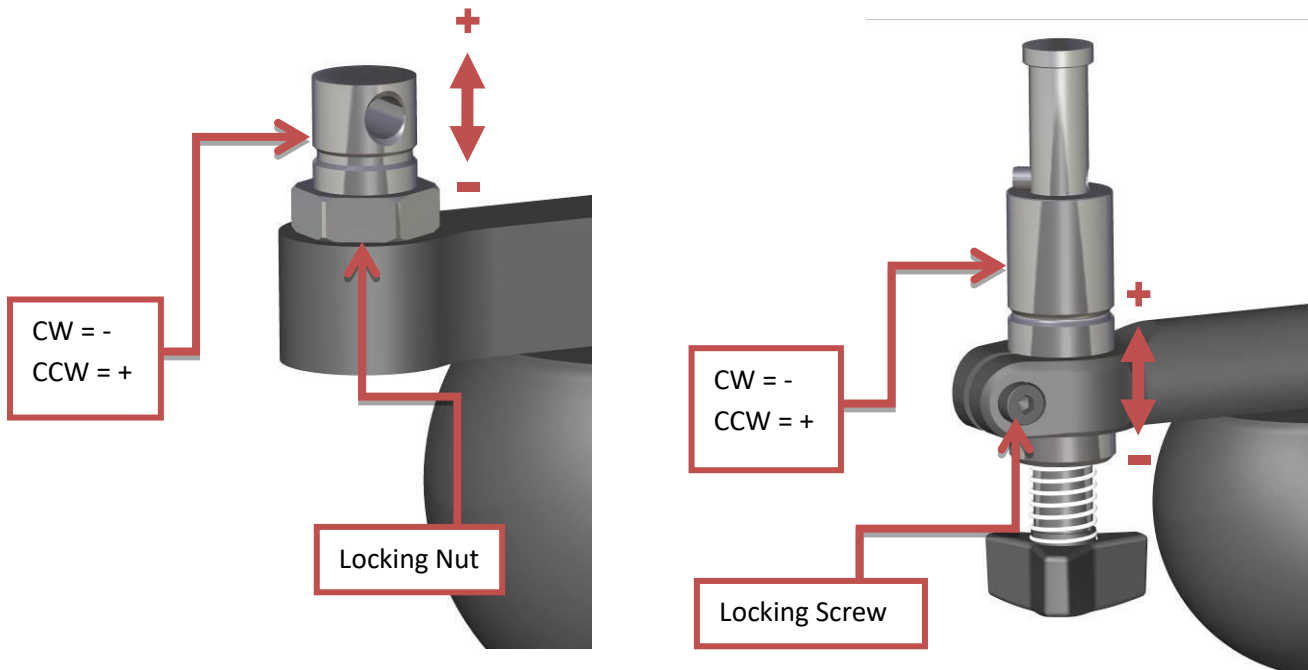
Adjustments are made with a 3mm Allen key and the screw has a 1mm pitch so that one turn equals 1mm in the desired direction.

Adjustment is carried out in each individual direction in the following steps:

- To get rid of the play in the adjustment screw; just turn it gently in the direction you want to adjust in, without loosening the locking screw, until it stops. Now the play is gone
- Loosen the locking screw
- Turn the adjustment screw in the desired direction (1mm = 1 rev)
- Tighten the locking screw
- Make sure to repeat the first step when changing the adjustment direction

Torque for locking screw: 1,5 Nm

## ADJUSTMENT OF SUPPORT



Adjustments are made with a 15mm wrench/by hand and the screw has a 1mm pitch so that one turn equals 1mm in the desired direction.

Adjustment is carried out in the following steps:

- Loosen the locking nut/locking screw
- Turn the adjustments screw in desired direction (1mm = 1 rev)
- Tighten the locking nut/locking screw

Torque for Locking screw: 1,5 Nm

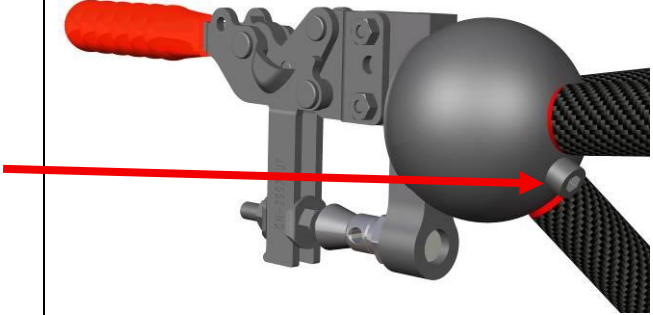
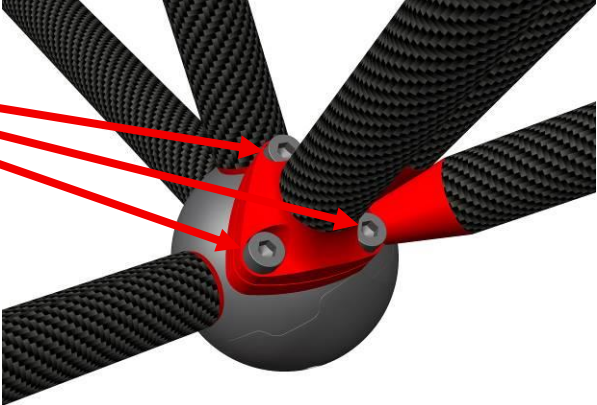
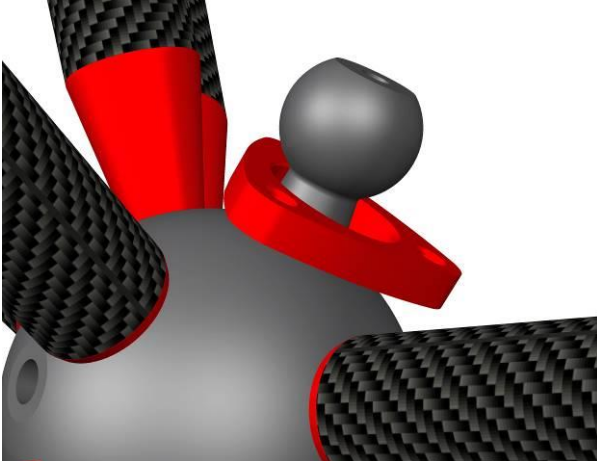


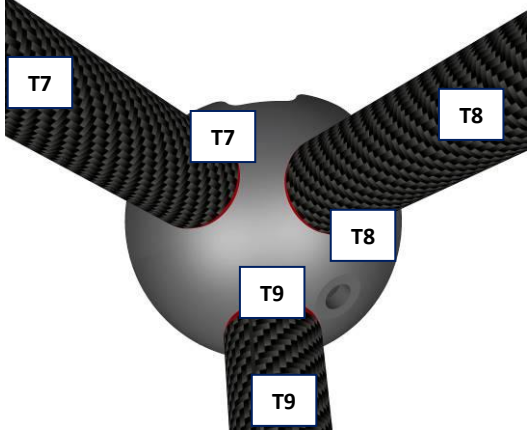


## CHANGE MANAGEMENT

This section should not be used if you do not have an agreement with TETRAFIX to perform your own change management.

This procedure explains how to change a tripod on a Tetrafix fixture equipped with retrofit capabilities. Retrofit capabilities is identified by the tripods all three legs being equipped with retrofit joints.

<p>Remove the RPS-package with the M6 screw and store in a safe place</p>	 A 3D CAD model of a joint assembly. A red arrow points to a small cylindrical component (the RPS package) that is secured to a larger grey spherical joint by a screw. The joint is connected to a black carbon fiber leg.
<p>Unscrew 3 x 3 M5 screws on tripod legs and remove the old tripod</p>	 A 3D CAD model showing a top-down view of the joint where three black carbon fiber legs meet. Three red arrows point to three screws that are used to secure the old tripod legs to the joint.
<p>Loosen the washer from the joint sphere by gently tapping the washer</p>	 A close-up 3D CAD model of the joint sphere. A red washer is shown being pushed away from the sphere. A red arrow points to the washer, indicating the direction of movement.

<p>Pre-assemble the new tripod by screwing the three new tubes into the corresponding hole in the new sphere – do not tighten the screw but leave some room</p>	
<p>Fit the tripod onto the fixture by using the existing sphere joints and washers</p>	
<p>Tighten all screws carefully so there is no play in the tripod – a total of 12 screws: 3 in the sphere and 3x3 on the legs</p>	
<p>Tighten all screws to between 7-9 Nm</p>	
<p>Put back the RPS-package and tighten the M6-screw</p>	
<p>Calibrate the new RPS point</p>	

**CAUTION**



**CARBON FIBRE**

Tetrafix fixtures are made of carbon fibre. Carbon fibre creates dangerous dust when cut into and cutting in carbon fibre should therefore not be carried out without necessary protection equipment.

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