

# 3DStereoRig



## User Manual for Standard Rig ENGLISH

Before operating this product, please read the instruction carefully and save this manual for future use.

Art. Nr. 25003 | v1101

## Manufacturer Information:

The manufacturer of this product is

**P+S TECHNIK GmbH**  
Siemensstraße 12  
85521 Ottobrunn/Munich  
Germany.

Please go to our website [pstechnik.de](http://pstechnik.de) for authorized dealers and service providers or send an email to [3d@pstechnik.de](mailto:3d@pstechnik.de) for contact information.

Concerning any service and warranty requests, please contact your local distributor or P+S TECHNIK GmbH directly.

### NOTE:



This user manual is meant to help prevent accidents and damage to people or equipment.

The manual and the product itself may be subject to technical changes.

## Safety instructions:

### **Temperature range:**



The Stereo Rig has been tested from 0° C to +50° C.

For field reports regarding more extreme temperatures please contact P+S TECHNIK Technical Support [helpdesk@pstechnik.de](mailto:helpdesk@pstechnik.de)

### **Maintenance / Special Tools:**

Do not touch glass components with sharp objects. For cleaning only use special cleaning supplies. Refer all servicing to qualified service personnel.

### **Storage:**

Please store the Stereo Rig in a dry and dust free location

### **Disposal:**



Dispose of packaging material, defective or unusable components and devices in accordance with standard industry practices. Keep out of reach of children.

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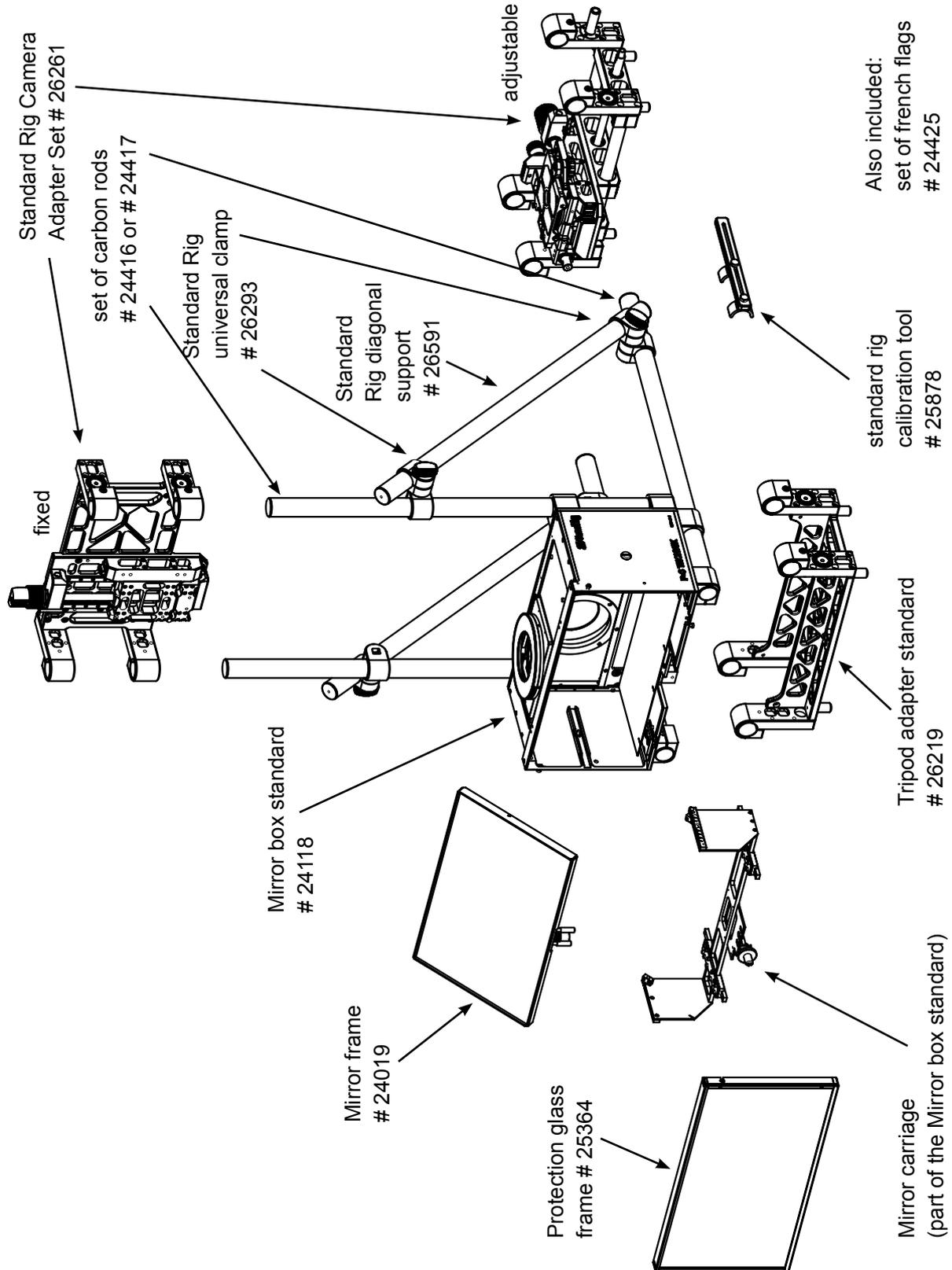
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# 1. 3D Standard Rig

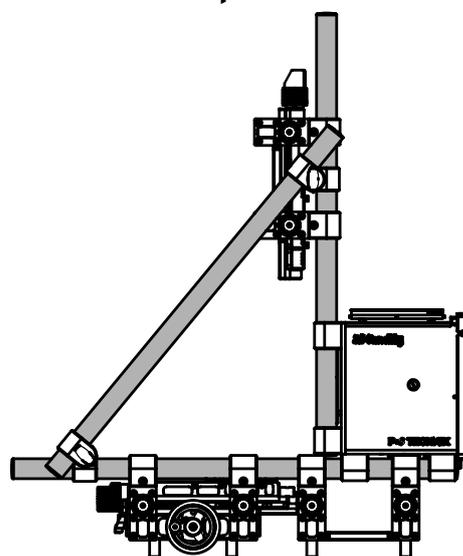


## 2. Mechanical Setup

The 3D Standard Rig is modular designed. You can use the rig in different setups with different components depending on the camera model and the lenses you want to use.

NOTE: Do not use force to fix the clamp screws, otherwise you will damage the carbon rods!

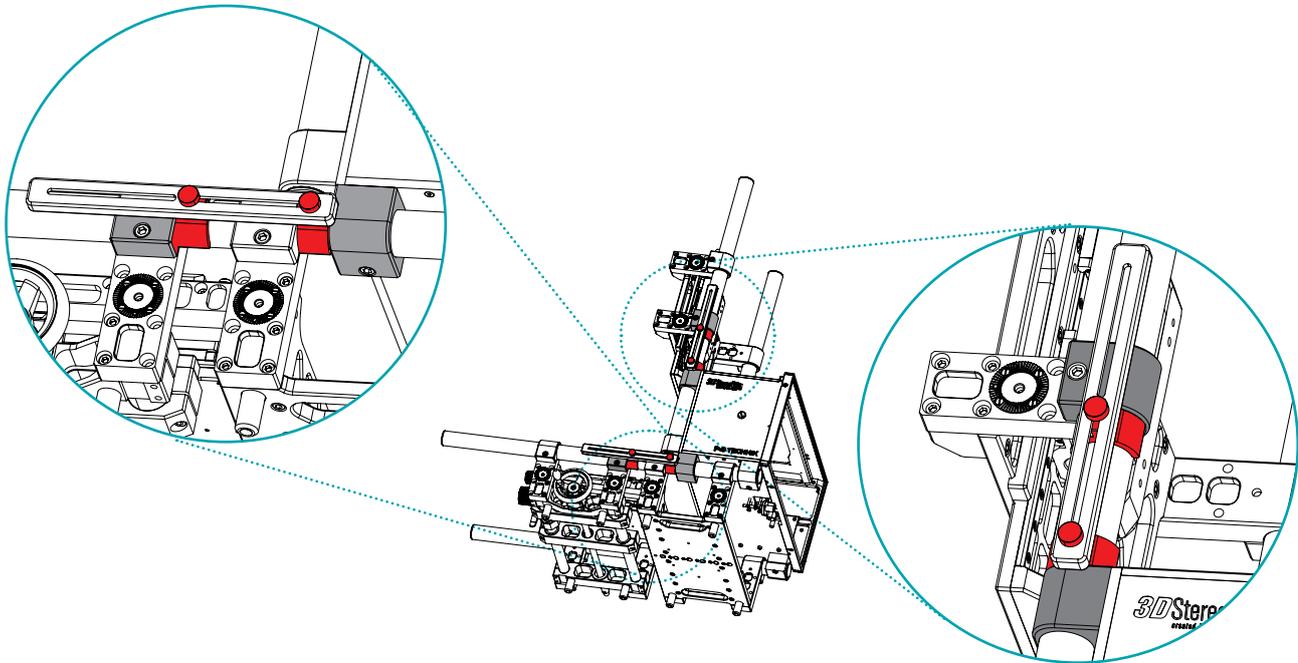
### 2.1 Set up Tripod Adapter, Camera Adapters and Frame Rods



- Fix Tripod adapter standard on a tripod
- Loosen clamp screws of the Tripod adapter, Camera adapters and Mirror box with an Allen key
- Place the Mirror box above Tripod adapter
- Slide the first pair carbon rods into the clamps of the Mirror Box and the Tripod adapter, fasten clamp screws
- Slide the adjustable Camera adapter on the carbon rods, fasten clamp screws
- Slide the second pair of carbon Rods into the vertical clamps of the mirror box, fasten clamp screws
- Slide the fixed Camera adapter and one pair of Standard Rig universal clamps on the second pair of carbon rods. As you see on the picture the universal clamps should be set between the Clamps of the fixed Camera Adapter. Fasten clamp screws
- If you want to motorize the Standard rig do it now. Therefore see chapter XX "Motorization"

## 2.2 Positioning the Camera adapters

Both Camera adapters must be set in the same distance to the Mirror box, otherwise you will not be able to shoot usable 3D pictures. The distance between the Camera adapters and the Mirror box depends on the size of the cameras and lenses you use.

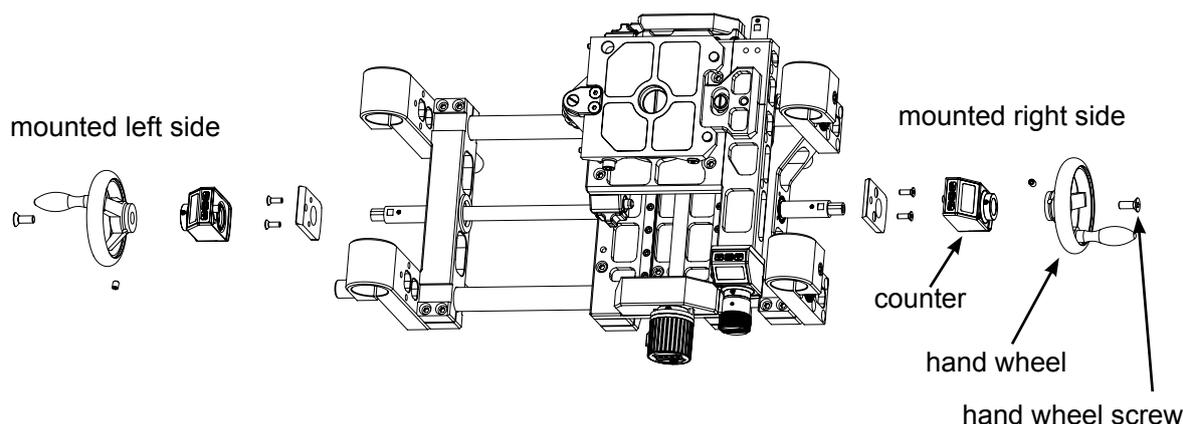


- Loosen clamp screws of the adjustable Camera adapter
- Slide adjustable Camera adapter in the correct position, fasten clamp screws
- Loosen the knurl screws of the Standard rig calibration tool, verify the measuring arms can move freely
- Put the Standard Rig calibration tool on the horizontal carbon rod, press the measuring arms against the rear clamp of the Mirror box and the front clamp of the adjustable Camera adapter
- Fasten knurl screws of the Standard rig calibration tool, drop off Standard rig calibration tool
- Loosen clamp screws of the fixed Camera adapter, slide it upwards
- Put the Standard rig calibration tool on the vertical carbon rod, press one measuring arm against the upper clamp of the Mirror box
- Slide the fixed Camera adapter with its downer clamp on the other measuring arm, fasten clamp screws.
- Remove the Standard rig calibration tool

## 2.3 Mounting the hand wheel

NOTE: Take the hand wheel off before you transport or ship the Standard rig, otherwise you will damage it.

Depending on the preference of the operator, you can mount the hand wheel on the left side or on the right side of the adjustable Camera adapter. The counter can be mounted to the left side as well.



- Unfasten and remove hand wheel screw
- Slide hand wheel on the axle
- Fasten hand wheel screw

## 2.4 Mounting and removing french flags

### Mounting:

- Remove Protecting glass frame, therefore see chapter 2.6
- Put french flag holders on the Mirror box, secure them with screws
- Mount Protecting glass frame, therefore see chapter 2.6
- Unscrew the black knurl screws
- Slide the french flags into the slots
- Fasten black knurl screw

### Removing:

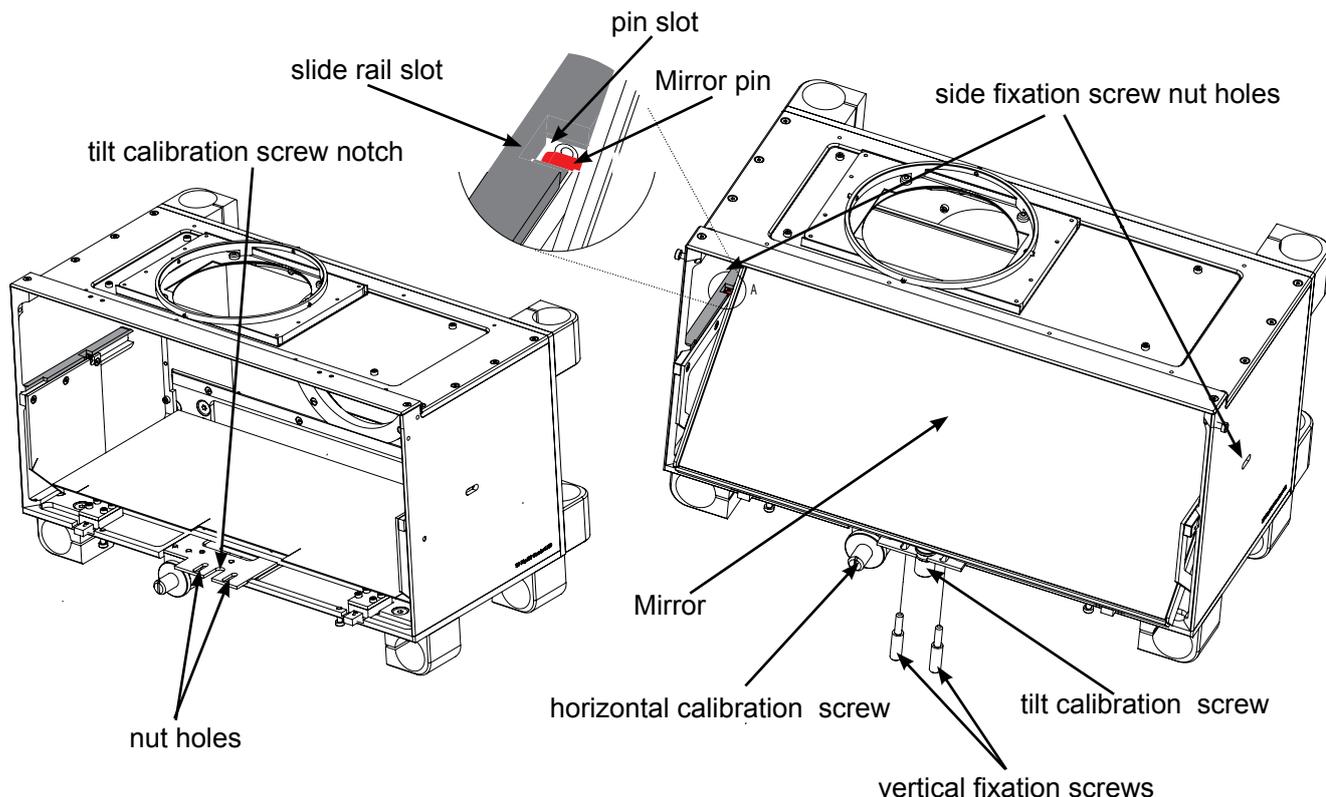
- Loosen black knurl screws
- Remove french flags. The french flag holders can stay on the Mirror box

## 2.5 Mounting the Mirror into the Mirror box

NOTE: Always wear rubber gloves when handling mirror to avoid fingerprints and scratches!

NOTE: Never detach the Mirror carriage completely from the mirror box, otherwise you will lose its ball bearing!

### 2.5.1 Mirror box Standard



- Remove french flags from the Mirror box if mounted. Therefore see chapter 2.7
- Remove Protection glass frame from the Mirror box if mounted. Therefore see chapter 2.6 "Mounting and removing Protection glass frame"
- Unscrew and remove the two side fixation screws
- Turn the horizontal calibration screw counter clockwise to move the mirror carriage forward until it is loose
- Move the mirror carriage by hand until the pin slots of the mirror carriage are aligned with the corresponding slots of the slide rail inside the mirror box

- Tighten the tilt calibration screw into the notch carefully. Make sure that the threads in the tiltable block are aligned with the nut holes towards the vertical fixation screws
- Tighten the two vertical fixation screws
- Insert the two pins of the mirror frame gently into the corresponding pin slots of the mirror carriage and the side rail. Be careful and do not use force, otherwise the mirror will be damaged
- Move mirror carriage backwards until the horizontal calibration screw takes hold
- Turn the horizontal calibration screw clockwise until the threads of the mirror carriage are aligned with the corresponding nut holes towards the side fixation screws
- Tighten the two side fixation screws to fix the mirror carriage

## 2.5.2 Mirror box Medium

- Remove french flags from the Mirror box if mounted. Therefore see chapter 2.4
- Remove Protection glass frame from the Mirror box if mounted. Therefore see chapter 2.7
- Unscrew and remove the two side fixation screws
- Turn the horizontal calibration screw counter clockwise to move the mirror carriage forward until it is loose
- Move the mirror carriage by hand until the pin slots of the mirror carriage are aligned with the corresponding slots of the slide rail inside the mirror box
- Screw the tilt calibration screw on the middle treaded pin lightly
- Hold the Mirror frame into the box and, slide the outer threaded pins into the nut holes while sliding the the tilt calibration screw into the tilt calibration screw notch
- Insert the two pins of the mirror frame gently into the corresponding pin slots of the mirror carriage and the side rail. Be careful and do not use force, otherwise the mirror will be damaged
- Put on the two vertical fixation screws
- Move mirror carriage backwards until the horizontal calibration screw takes hold
- Turn the horizontal calibration screw clockwise until the threads of the mirror carriage are aligned with the corresponding nut holes towards the side fixation screws
- Tighten the two side fixation screws to fix the mirror carriage

## 2.6 Removing the Mirror from the Mirror box

### 2.6.1 Mirror box Standard

- Unscrew and remove the two side fixation screws
- Turn the horizontal calibration screw counter clockwise to move the mirror carriage forward until it is loose
- Move the mirror carriage by hand until the pin slots of the mirror carriage are aligned with the corresponding slots of the slide rail inside the mirror box
- Remove the tilt calibration screw and the two vertical fixation screws from the tiltable block
- Pull gently on both ends of the mirror frame until the two pins of the mirror frame are released from the corresponding slots. Be careful and do not use force, otherwise the mirror will be damaged

### 2.6.2 Mirror box Medium

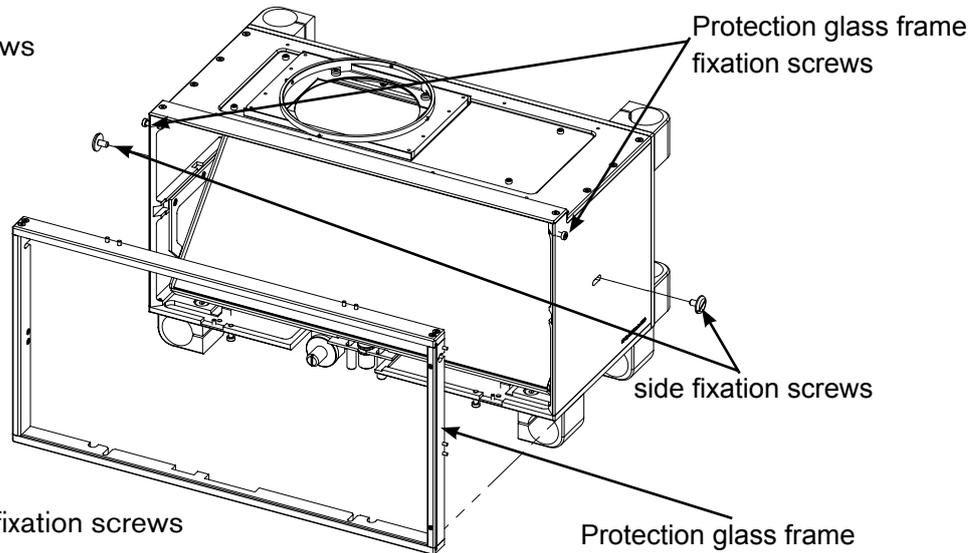
- Unscrew and remove the two side fixation screws
- Turn the horizontal calibration screw counter clockwise to move the mirror carriage forward until it is loose
- Move the mirror carriage by hand until the pin slots of the mirror carriage are aligned with the corresponding slots of the slide rail inside the mirror box
- Remove the two vertical fixation screws and loosen the tilt calibration screw
- Pull gently on both ends of the mirror frame until the two pins of the mirror frame are released from the corresponding slots. Be careful and do not use force, otherwise the mirror will be damaged
- Pull the treaded pins out of the nut holes while removing the tilt calibration screw from its notch
- Remove the Mirror from the Mirror box

## 2.7 Mounting and removing Protection glass frame

NOTE: Always wear rubber gloves when handling the Protection glass frame to avoid fingerprints and scratches!

## Mounting:

- Set the Protection glass frame on the Mirror box. Verify the holes for its fixation screws are on the upper side
- Put the fixation screws into the holes
- Fasten fixation screws

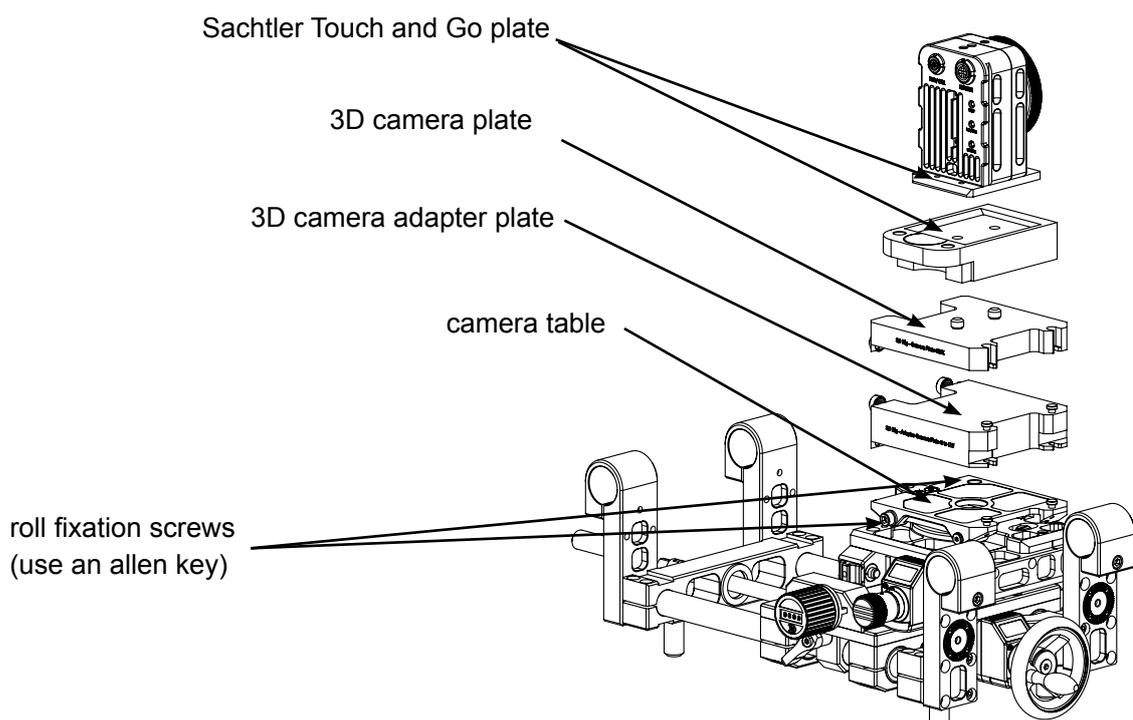


## Removing:

- Unscrew the two fixation screws
- Pull Protection mirror frame off

## 2.8 Mounting the cameras

The sandwich combination of camera plates needed to mount your camera depends on the camera model you use. These parts are not included in the Standard Rig Kit.



## 2.8.1 Mounting large cameras

In case of large cameras (e.g. RED One) you just need the 3D camera plates included in your camera kit.

## 2.8.2 Mounting small cameras

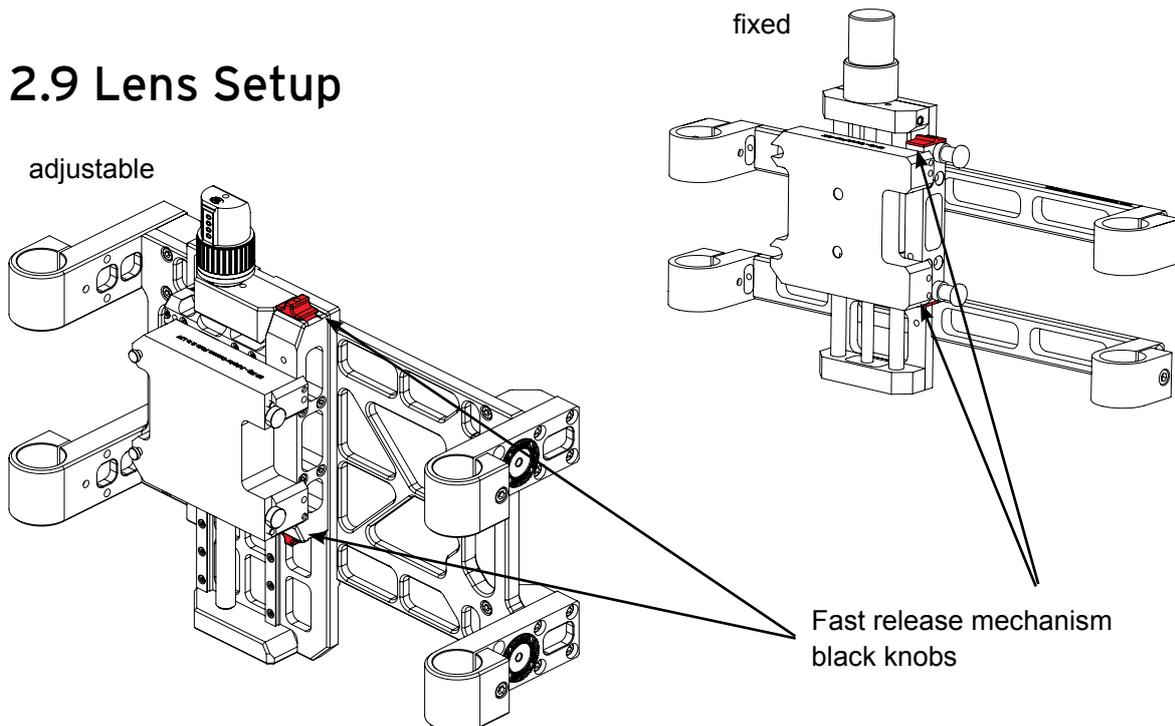
e.g. SI-2K, Sony PMW-EX3, Sony HDC-X300

- Attach your 3D camera adapter plates to the camera stage
- Attach your Sachtler Touch and Go plates to the P+S Technik 3D camera plates with the provided screws. Verify the plates are alligned correctly (horizontal and parallel to the border of each camera plate)
- Attach the sandwich of camera plates to the 3D camera adapter plates already attached to the camera stage
- Verify all screws are fastened
- Attach both cameras to the camera adapters. Before you take your hands off the cameras check the stability of the setup

## 2.8.3 Mounting Sony HDW

In case of Sony HDW you also need two Chrosziel quicklock plates to attach directly to the 3D camera plates .

## 2.9 Lens Setup



To access or change the lenses (e.g. if you work with a set of primes) you can use the fast release mechanisms of your camera adapters. This feature allows you to detach camera and lens without loosening the calibration.

- Pull the black front knob on the front of the camera table
- While leaving front knob pulled pull the whole camera carriage backwards/upwards
- Pull the black rear knob on the rear of the carriage
- While leaving rear knob pulled pull the camera carriage with the camera backwards/upwards until the knob locks
- Before you take your hands off the cameras double-check if everything is secured.

Depending on the front diameter of the lens there are four different light protection rings available (#24780, #24779, #25565, #24426). These can be changed just by clicking the adapter ring into the receptacle.

## 3. Calibration

### 3.1 Balancing the rig

When you use the Standard rig on a tripod or a crane you may have to balance it.

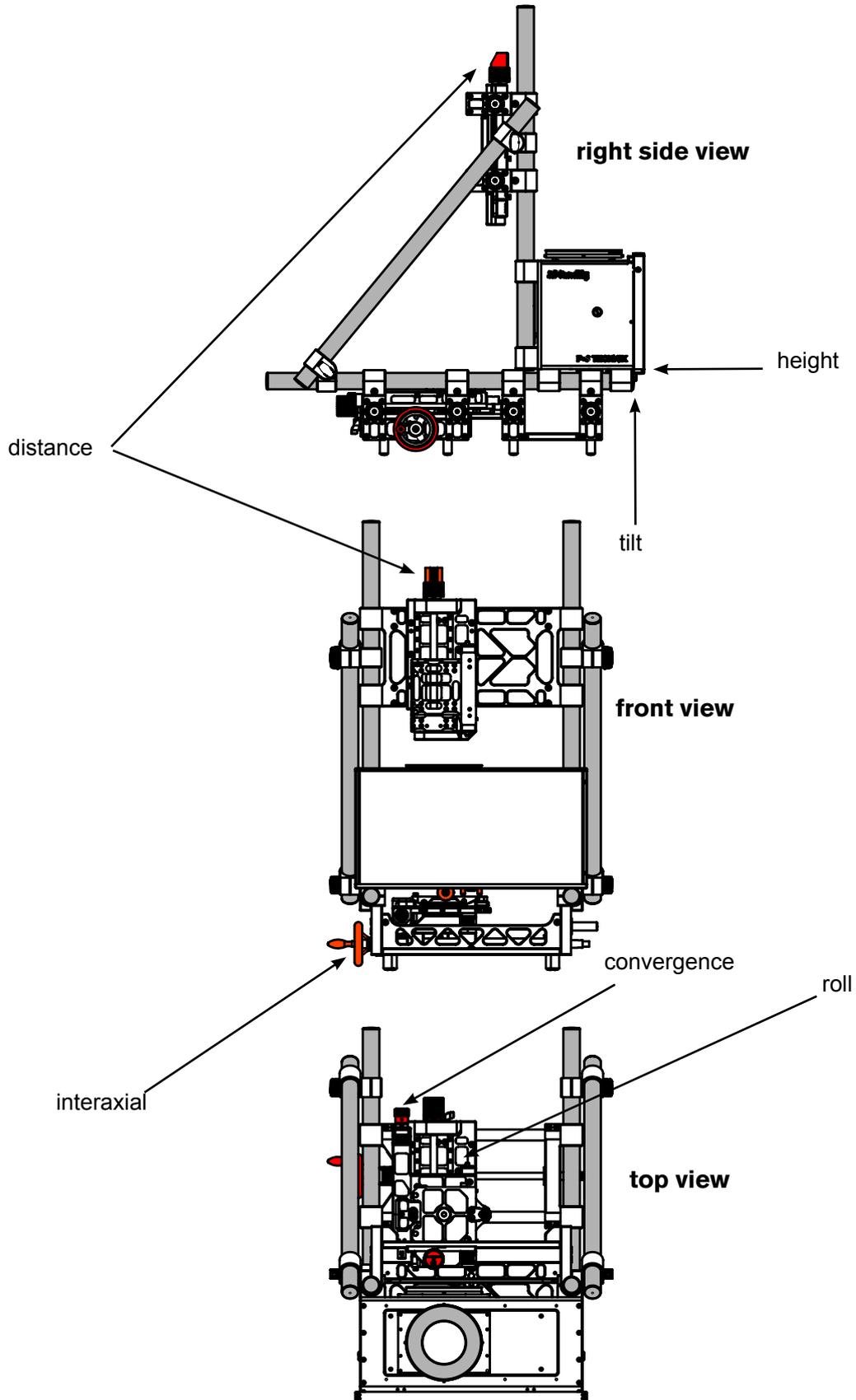
- Mount the cameras on the rig
- Open Tripod adapter clamp screws
- Move the Standard Rig gently forwards or backwards until it is balanced
- Fasten Tripod adapter clamp screws

### 3.2 Mechanical Image correction

NOTE: All adjustments start from the middle (or zero) position

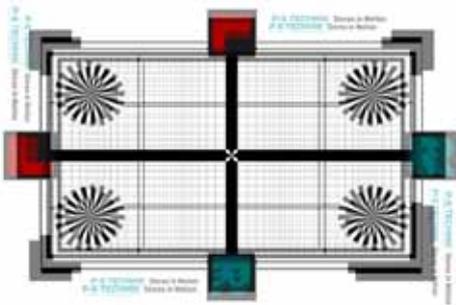
NOTE: To match the cameras you need an appropriate test setting. It should contain vertical and horizontal structures in the background like a door or a building. You also need some vertical and horizontal structure in the foreground very close to the mirror box. Both test patterns should be mounted parallel to the camera. For perfect alignment special testcharts can be helpful. Both test charts should be visible so you can see aberrations in foreground and background simultaneously.

## Standard Rig calibration elements

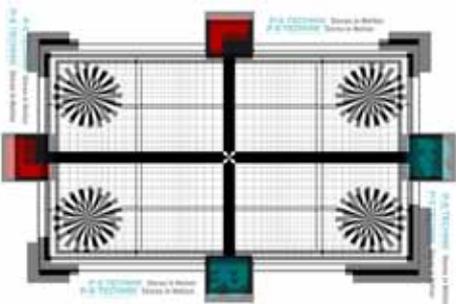


## To calibrate the Standard Rig

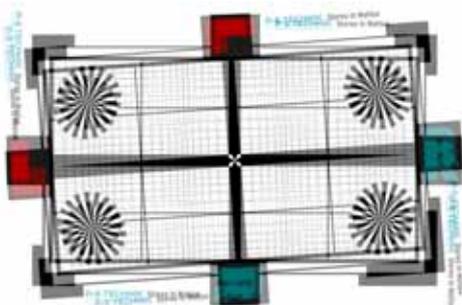
1. Release fixation screws. (mirror and roll). See chapter 2.7 and 2.8 for images
2. Check that the horizontal camera can move freely in the complete range of interaxial.
3. Mount the cameras and the mirror in the markers zero-position (interaxial, convergence, tilt, height, roll).
4. Place one chart in foreground, one in background. Both charts should be visible at the same time. It is also possible to look at horizontal and vertical structures in the background of the scene instead of a chart.
5. Display both cameras in anaglyph, difference or overlay.
6. Check that both cameras are flipped in the correct position (left-right, top-bottom).
7. Zoom lenses: Correct image size with zoom and distance.



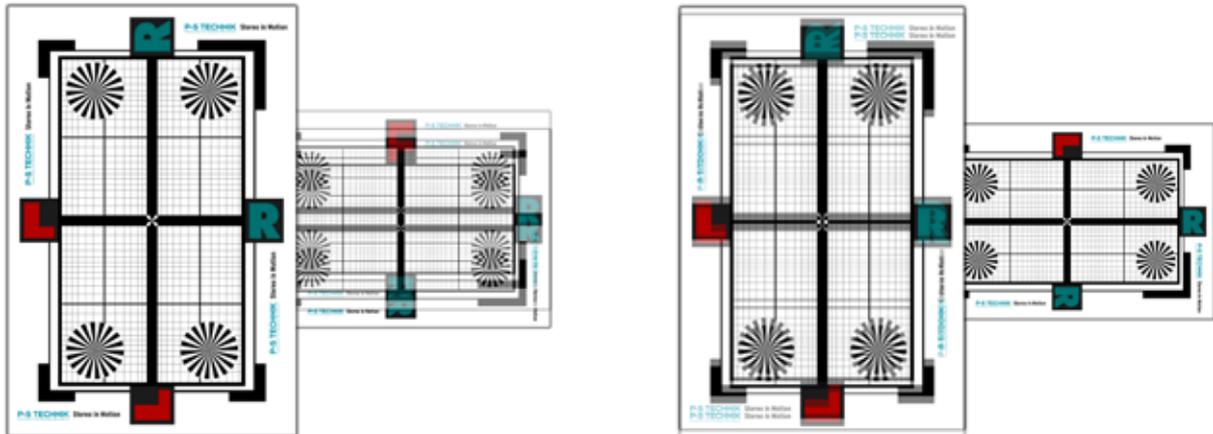
8. Prime Lenses: Correct image size with distance.



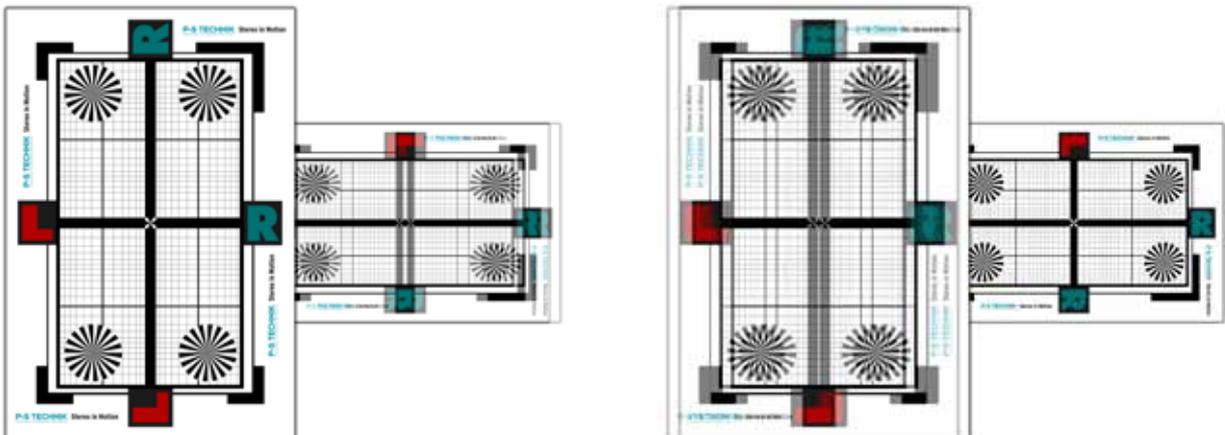
9. Correct the roll (different height-offset from left to right).



10. Change tilt to correct height offset in background, change height (down/up) to correct height offset in foreground. Repeat until there is no more height offset in foreground and background .



11. Change convergence to correct side offset in background, change interaxial to correct offset in foreground. Repeat until there is no more side offset in foreground and background.



12. The adjustable axes influence each other. Repeat the calibration until no offset is left.

13. Fix the calibration by fastening the fixation screws

## 3.3 End stop settings

Set end stops of interaxial and convergence when camera are perfectly matched with no parallax. Therefore you set the digital counter of convergence and interaxial to zero.

## 3.4 Manual 3D stereo adjustment

You can move the knobs for interaxial and convergence manually. Disconnect or switch off the remote control system so that you can move interaxial and convergence manually.

## 4. Remote Control Use

### 4.1 Standard Rig Motorization

The 3D parameters interaxial and convergence can be motorized by using the Standard rig Motorization Kits and a lens control system with offset motors.

Verify cameras can be moved to every interaxial position prior to calibrating the remote control system.

For the modular Universal 3D Rig System there are two types of motorisation kits available:

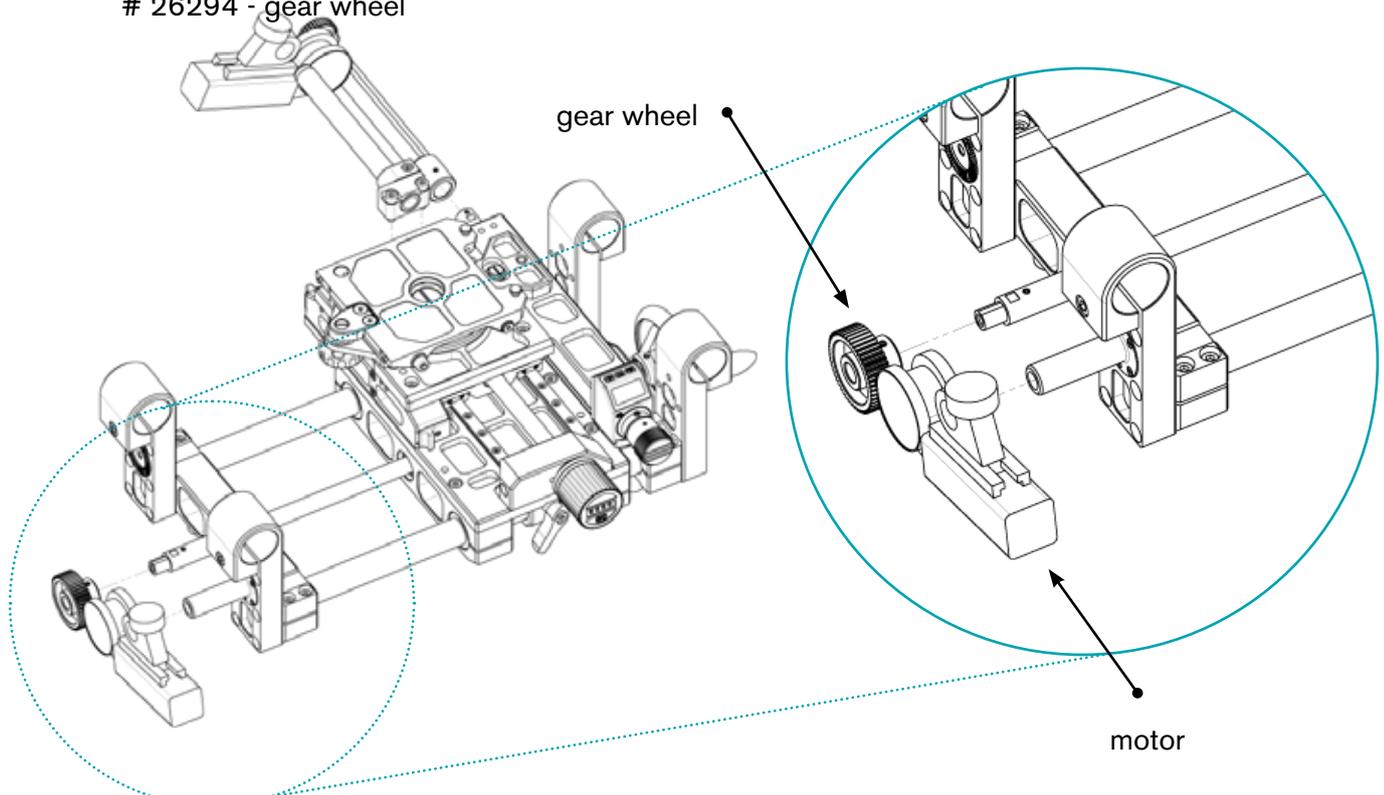
- A. # 26328 - Motorisation kit for the Angulation
- B. # 26294 - Motorisation kit for the X-Stereobase

The rods have a diameter of 15mm and have been designed for the use of the motor M26VE by Heden and cmotion LCS. Motors and remote controls of other brands might fit as well. Use 15mm reduction rings (usually shipped with the motor) in order to apply the motor to the motor holder rods

#### 4.1.1 Motoizing the X-Stereobase

Package Content:

# 26294 - gear wheel



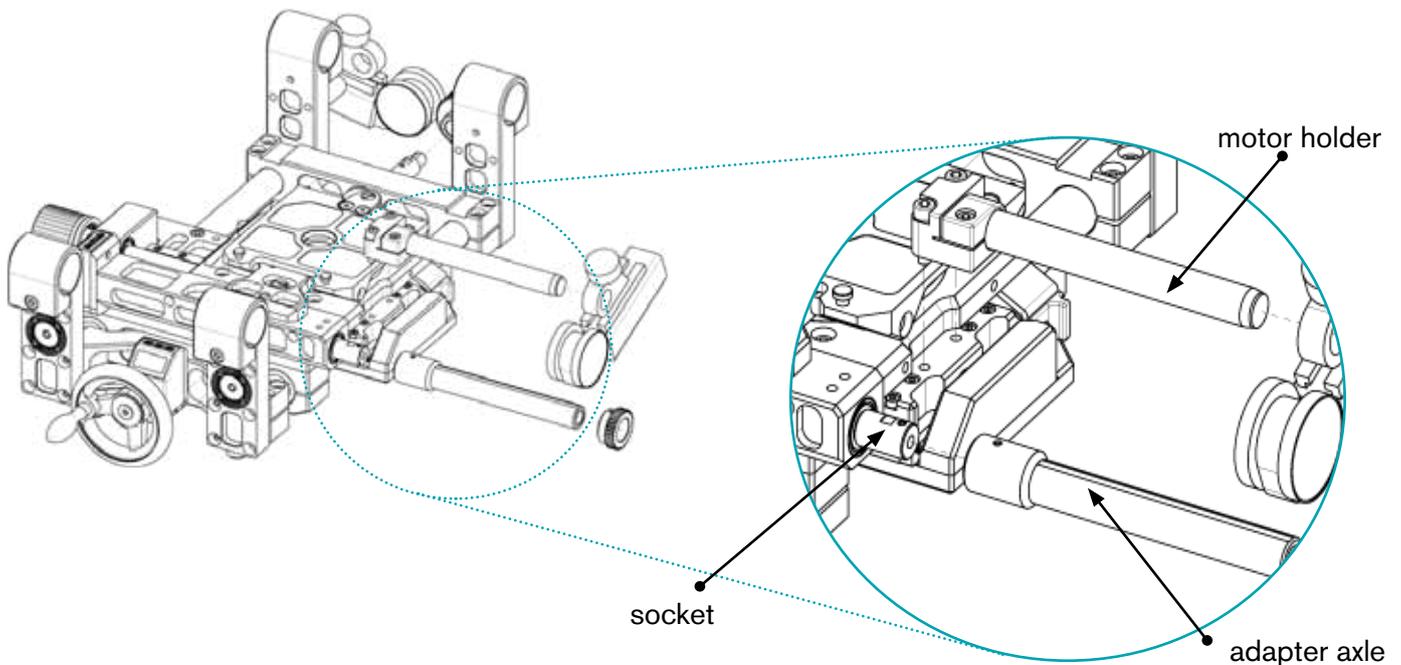
- Set gear wheel on the axle of the stereobase adjusting system
- Verify the gear wheel fixation screw fits onto the small flat area on the top side of the axle of the stereobase adjusting system
- Fasten gear wheel fixation screw
- Set motor on the motor holder
- Verify the gear wheel fit tightly
- Fix motor on the motor holder

## 4.1.2 Motorizing Angulation

Package Content:

1. # 26330 - adapter axle
2. # 26332 - gear wheel
3. # 26334 - motor holder
4. # 26329 - heavy duty motorisation user manual

In order to allow the use of largely differing camera- and lense setups the adapter axle has got a large adjustable range.



- Set the adapter axle on the socket of the angulation axle
- Verify the fixation screw of the adapter axle fits onto the small flat area on the top side of the socket
- Fasten adapter axle fixation screw
- Set the gear wheel on the adapter axle, slide into the position you need for use
- Fasten gear wheel fixation screw
- Set motor holder on the angulation module, fasten motor holder screws
- Attach the motor to the motor holder
- Verify the gear wheel fit tightly
- Fix motor on the motor holder

## 4.2 Lens control

### 4.2.1 Focus and Iris

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In addition to the 3D-parameters you can motorize focus and iris. Use a second lens control system that is able to handle two lenses in sync.

### 4.2.2 Zoom

For zooming in 3D you need two perfectly matched camera and zoom-setups.

NOTE: Verify the attachment of your lens control system does not get in the way of the rigs interaxial movement!

## 5. Additional Training

For training workshops please visit the P+S TECHNIK website ([www.pstechnik.de](http://www.pstechnik.de)) or email to [workshop@pstechnik.de](mailto:workshop@pstechnik.de).

## 6. Storage, Handling and Care

### 6.1 Storage and Transportation

Use the Standard Rig Transport Case #27114 for optimal storage and transportation.

Always keep the freestyle rig in a dry place.

### 6.2 Handling

NOTE: Never carry the Standard Rig by using the camera hand grips!

Always use the additional hand grips and carbon rods to carry the Standard rig around. A second person is very helpful to carry the Standard rig around.

### 6.3 Cleaning the Mirror

NOTE: The special coated mirror is very sensitive.

Always wear a pair of new rubbergloves to avoid fingerprints and scratches

Check the mirror carefully for dirt and scratches

Never use a brush or cloth to remove sand and other solid particles, or you will damage the mirror Use an air spray to remove this kind of dirt.

Use a soft microfiber cleaning cloth! Never use pressure while wiping to remove dust.

Never use an acid detergent to clean off grease or oil. Use a slight humid microfiber cloth wetted with and denatured ethyl alcohol mixture (1:1). !

## 7. 3D Competence Centers and Resellers

For your local 3D Competence Centers and Resellers please visit the P+S TECHNIK website ([www.pstechnik.de](http://www.pstechnik.de)).



