

# Sinar arTec

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## The Camera System for Digital Architectural Photography



## Operating Instructions

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# 1 Introduction

## 1.1 Fundamentals

We congratulate you on the purchase of your Sinar arTec camera and we thank you for your trust in our products. We are convinced that the Sinar arTec will be extremely helpful in your work. Its sturdy and precise construction assures you a long and problem-free operation.

Before you use your Sinar arTec camera for the first time, please read the **Operating Instructions** very carefully. This will enable you to use the camera to best advantage and it will prevent disruptions that may result from improper operation.

### 1.1.1 Range of applications

The Sinar arTec camera is a professional camera system that was designed specifically for digital architectural and landscape photography. It features a viewing- and an exposure position. The viewing position is used for composing the image precisely on the focusing screen and the exposure position is then used for making the actual photograph. To change from the viewing position to the exposure position, a slider is moved to the right, so that the digital back will “see” the exact same image that you composed on the focusing screen.

The **Sinar arTec Hy6** version can be used with Sinar or Leaf digital backs that are equipped with Sinar Hy6 or Leaf AFi interfaces, respectively.

The Sinar Rotation Adapter enables you to change from the vertical to the horizontal format without having to remove the digital back, which guarantees a secure and *dust-free* operation.

The **Sinar arTec HB-V** version can be used with Sinar, Hasselblad, Leaf or Phase One digital backs that are equipped with a Hasselblad V camera interface.



Fig. 1a: Sinar arTec with Sinar Hy6 camera interface



Fig. 1b: Sinar arTec with Hasselblad-V camera interface

### 1.1.2 Symbols and Signs



Notes marked with this symbol are to be observed with emphasis.



Numbers in square brackets refer to a camera element or operating controls of the camera.

## 1.2 Technical Data

Vertical shift range:	+25 / -15 mm	
Horizontal shift range:	+20 / -20 mm	
Swings and tilts:	± 5° in all directions (360°)	
Dimensions:	27 x 19 x 7 cm	(approx. 10 1.5 x 7.5 x 3")
Weight:	1.45 kg	(approx. 3 lb)
Tripod socket:	Can be rotated 360°; 3/8" thread	
Operating temperature:	0° C – +45° C	(+32° F – +113° F)
Storage temperature:	-10° C – +60° C	(+14° F – +140° F)
Relative humidity:	5% – 80%, non-condensing	

## 1.3 Scope of Delivery

The Sinar arTec camera is currently available in four different versions. The sets of items that are included are different for each version.



Immediately upon receiving your camera, please verify that the set of items that are supplied with your version of the camera is complete and undamaged. If anything is missing or if something is damaged, contact your supplier immediately.

### 1.3.1 Sinar arTec Hy6

Item no. 493.23.000, with an interface that is compatible with the Sinar Hy6 camera.

493.23.100	Sinar arTec Hy6
551.32.086	Focusing Magnifier
493.23.504	Format Mask 36 x 48 mm
475.45.036	Sinar arTec Camera Case
02.1180x	Operating Instructions Sinar arTec (as a PDF file on a CD)



*Fig. 2:  
Sinar arTec Camera Case  
with all the accessories that  
can be put into it.*

### 1.3.2 Sinar arTec HB-V

Item no. 493.23.001, with an interface that is compatible with Hasselblad V cameras (available as of April 2009)

493.23.101	Sinar arTec HB-V
551.32.086	Focusing Magnifier
493.23.504	Format Mask 36 x 48 mm
475.45.036	Sinar arTec Camera Case
02.1180x	Operating Instructions Sinar arTec (as a PDF file on a CD)

### 1.3.3 Sinar arTec-e54r

Item no. 493.23.011, Sinar arTec Hy6, with Sinarback eMotion 54 LV

- 493.23.100 Sinar arTec Hy6
- 552.36.185 SB eMotion/Sinar Hy6 Revolving Adapter
- 02.10216 Note regarding Sinarback eMotion Adapter
- 552.36.111 Sinarback eMotion 54 LV
- 551.43.090 Sinarback Software
- 551.63.054 Firewire Cable 1394 A, 4.5 m / 15 ft
- 551.33.090 Digital Cleaning Kit
- 751.43.003 Kodak Gray Card
- 551.43.097 White Shading Diffusor 100
- 552.36.096 Sinar V290 Battery, 7.2 V Li+
- 552.36.093 Charger for V290 Battery, including mains adapter
- 551.32.086 Focusing Magnifier
- 493.23.504 Format Mask 36 x 48 mm
- 552.37.092 CF Card 4 GB
- 552.37.090 CF Card Reader
- 551.64.070 Trigger Cable eMotion
- 475.45.038 Sinar arTec System Case
- 02.1180x Operating Instructions Sinar arTec (as a PDF file on a CD)



*Fig. 3  
Empty Sinar arTec System Case in which the whole scope of delivery and also lenses of choice are stored.*

### 1.3.4 Sinar arTec-e75r

Item no. 493.23.013, Sinar arTec Hy6, with Sinarback eMotion 75 LV

- 493.23.100 Sinar arTec Hy6
- 552.36.185 SB eMotion/Sinar Hy6 Revolving Adapter
- 02.10216 Note regarding Sinarback eMotion Adapter
- 552.36.113 Sinarback eMotion 75 LV
- 551.43.090 Sinarback Software
- 551.63.054 Firewire Cable 1394 A, 4.5 m / 15 ft
- 551.33.090 Digital Cleaning Kit
- 751.43.003 Kodak Gray Card
- 551.43.097 White Shading Diffusor 100
- 552.36.096 Sinar V290 Battery, 7.2 V Li+
- 552.36.093 Charger for V290 Battery, including mains adapter
- 551.32.086 Focusing Magnifier
- 493.23.504 Format Mask 36 x 48 mm
- 552.37.092 CF Card 4 GB
- 552.37.090 CF Card Reader
- 551.64.070 Trigger Cable eMotion
- 475.45.038 Sinar arTec System Case
- 02.1180x Operating Instructions Sinar arTec (as a PDF file on a CD)

## 2 Preparation

### 2.1 Description of the Camera and its Functions

#### 2.1.1 The operating elements



Fig. 4a: Rear view of the Sinar arTec showing the digital back and the flexible focusing magnifier

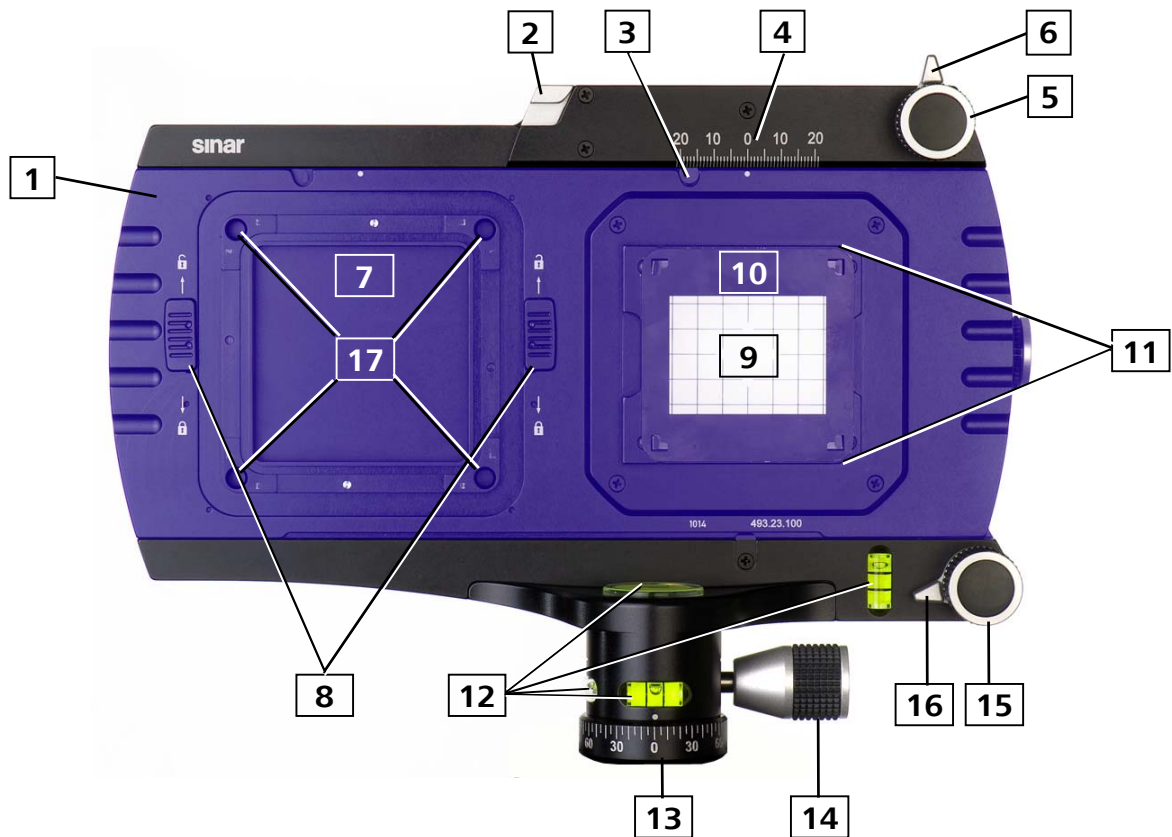


Fig. 4b: Front view of the Sinar arTec showing the lens, the Rod holder and an Accessory shoe

- A** Sinar arTec camera body
- B** Sinar Revolving Adapter
- C** Digital Back (different models)
- D** Removable 3x focusing magnifier with flexible angle of viewing
- E** Sinaron Digital CEF lens
- F** Optional arTec Filter Rod Holder
- G** Optional Accessory Shoe



**2.1.2 Details of the Camera**



*Fig. 5: Rear view of the Sinar arTec camera body*

The area shown in blue highlights the slider, which is moved to the right for the change into the Exposure position.

- 1 Slider
- 2 Unlatching key for Slider
- 3 Click stop for the Viewing position or the Exposure position
- 4 Scale for horizontal shifts +20/-20 mm
- 5 Micro drive for horizontal shifts
- 6 Locking lever for the Horizontal micro drive
- 7 Attachment position for digital backs
- 8 Locking slider for digital back, left / right (Sinar arTec Hy6)
- 9 Combined Fresnel lens and Focusing screen
- 10 Reversible magnetic metal format mask
- 11 Guides for the Focusing magnifier
- 12 Four spirit levels
- 13 Camera base
- 14 Locking screw for camera base rotation
- 15 Micro drive for Vertical shifts
- 16 Locking lever for the Vertical micro drive
- 17 Openings for positioning the adapter plate's cones (Sinar arTec Hy6)



Fig. 6a: Front view of the Sinar arTec, without a lens



Fig. 6b: The Sinar arTec with an attached lens

- 21** Lens carrier frame, can be rotated 360°
- 22** Lens Unlocking slider
- 23** Micro drive for tilting the Lens carrier frame
- 24** Zero-position Locating pin for rotating/swinging the Lens carrier frame
- 25** Locking lever for rotations/swings of the Lens carrier frame



Fig. 7: All important operating elements are conveniently accessible to the photographer working behind the camera.

- 5** Micro drive for horizontal shifts
- 14** Locking screw for the camera base rotation
- 15** Micro drive for vertical shifts
- 23** Micro drive for tilting the Lens carrier frame
- 25** Locking lever for rotations/swings of the Lens carrier frame

## 2.2 Setting up and Leveling the Camera

1. Mount the Sinar arTec on a sturdy tripod equipped with a 3/8" tripod thread [13].
2. Tighten the fastening screw of the camera base [14] and make sure that the camera is attached firmly to the tripod head.
3. Level the camera, using the arTec camera's spirit levels for longitudinal and lateral alignment.
4. If necessary, loosen the fastening screw of the camera base [14] again and align the camera with the subject to be photographed.

## 2.3 Attaching and Removing a Digital Back on a Sinar arTec Hy6



Fig. 8: Attaching a digital back to the Sinar arTec Hy6 camera

### 2.3.1 Attaching a Digital back

5. Remove the left protective cover by shifting the two Locking latches [8] upwards until they are level with the line at the tip of the arrow.
6. Mount the digital back – after first having attached the corresponding adapter plate\* to that back – in the horizontal position, inserting the four studs of the adapter plate into the four corresponding holes [17] on the camera. Hold the digital back to the camera with gentle pressure and slide the two latches [8] downwards until they are level with the line at the tip of the arrow. Make sure that both sides of the digital back are fastened securely.

\* Adapter Plate 552.36.285 or 552.36.286 for the Sinarback eMotion, or appropriate adapters for digital backs from other suppliers

### 2.3.2 Removing the Digital back

1. Grasp the digital back firmly with one hand and slide the two Locking latches [8] upwards, one after the other, until they are level with the line at the tip of the arrow.
2. Lift the digital back from the camera and attach the corresponding protective cover in order to protect the mounting seat [7] for the digital back from dust as much as possible.

## 2.4 Attaching and Removing a Digital Back on a Sinar arTec HB-V



Fig. 9: Attaching a digital back to the Sinar arTec HB-V camera

- |           |   |
|-----------|---|
| <b>51</b> | Magnetic discs to hold the Protection cover |
| <b>52</b> | Upper Hasselblad V Interface claw           |
| <b>53</b> | Lower Hasselblad V Interface claw           |
| <b>54</b> | Film advance cog                            |
| <b>55</b> | Film advance button                         |

### 2.4.1 Attaching a Digital back

1. Remove the left Protective cover that is held in place by magnets [51] by grasping it at the top and then simply pull it away.
2. Place the digital back – after first having attached the corresponding adapter plate\* to that back – on the lower claw [53] and swing the digital back upwards and firmly press it against the camera until it latches in the Upper claw [52]. Verify that the digital back is attached securely by means of a controlled grasp.

\* Adapter Plate 552.36.270 for the Sinarback eMotion, or appropriate adapters for digital backs from other suppliers (Hasselblad, Leaf, Phase One, etc.)

### 2.4.2 Removing a Digital back

1. Grasp the digital back firmly with one hand and press the unlocking slide of the Sinarback eMotion Adapter Plate, or the unlocking button of a digital back from another supplier.
2. Lift the digital back from the camera and immediately attach the corresponding protective cover so that the mounting seat [7] for the digital back will be protected from dust as much as possible.

## 2.5 Changing the Image Format



Fig. 10: Digital back in landscape format



Fig. 11: Digital back in portrait format

### 2.5.1 Changing the format on a Digital back with a Revolving adapter on Sinar arTec Hy6

The Sinar Revolving adapter of the Sinarback permits the quick, secure and dust-free changing from the landscape to the portrait format or vice-versa. Simply rotate the digital back by 90° clockwise or counter-clockwise until it stops.



In order to turn the Sinar Revolving adapter from the landscape to portrait format, the camera slider must be placed in the Viewing position (see also image 23a).

### 2.5.2 Changing the format on a Digital back with a Conventional adapter on Sinar arTec Hy6

When a camera adapter other than the Sinar Revolving Adapter is used on a Sinar arTec Hy6 camera, the digital back has to be detached from the camera and rotated by 90° for changing the format from landscape to portrait (or vice-versa) and then be re-attached to the camera (also see chapter 2.3)

### 2.5.3 Changing the format on a Digital back mounted on a Sinar arTec HB-V

In order to change from a landscape to a portrait format on a digital back with a Hasselblad-V camera-interface, the digital back has to be removed from the camera and then be re-attached (please refer also to chapter 2.4).

### 2.5.4 Changing the format orientation of the Format mask

The Format mask is held in place on the focusing screen magnetically. In order to re-orient the format mask, first detach the focusing magnifier, then place the format mask in the desired position and then slide the focusing magnifier back into position.

## 2.6 The Focusing Magnifier



Fig. 12: Attaching the Focusing magnifier



Fig. 13: The focusing magnifier in place on the camera

### 2.6.1 Features of the Focusing magnifier

The flexible Sinar Focusing magnifier 551.32.086 has a 3x magnifying power and it enables you to view the entire focusing screen at a glance.

Its eyecup can be rotated to set a diopters correction.


The bellows placed between the magnifying lens and the magnifier housing enables you to view the entire focusing screen, even when the camera lens is strongly tilted or swung. Otherwise the bundle of light rays would be blocked by the Fresnel lens that is located under the focusing screen. Thanks to this flexibility, the focusing screen can still be viewed all the way to its corners with camera lenses with short focal lengths and strongly reduced light transmission along the edges of the image.

### 2.6.2 Attaching the Focusing magnifier

1. Remove the Protective cover by sliding it to the right.
2. Align the Focusing Magnifier at the right side of the guides **[11]** and slide it to the left until it clicks in place.

### 2.6.3 Removing the Focusing Magnifier

To remove the Focusing magnifier from the camera, simply slide it to the right.

	In order to protect the focusing screen from damage, always install the protective cover when the camera is not in use.
---	---



## 2.7 The Focusing Screen

The Focusing screen [9] of the Sinar arTec camera consists of a glass plate with grid lines and a Fresnel lens positioned right below that plate. This arrangement guarantees a clear and bright image for viewing.



Fig. 14: Format mask over the Focusing screen with a Fresnel lens

## 2.8 The Format Mask

### 2.8.1 Features

The metallic Format mask of the Sinar arTec camera, item no.493.23.504, has an opening that corresponds to the size of the sensor of the Sinarback eMotion 54, Sinarback eMotion 75, or the Sinarback eVolution 75 and it is affixed precisely over the focusing screen by means of its eight magnets.

### 2.8.2 Changing the format

To re-orientate the Format mask from the landscape to the portrait format (or vice-versa), simply lift it from the camera by hand – after first removing the focusing magnifier –, rotate it by 90° and then re-attach it to the focusing screen.

## 2.9 Attaching and Removing the Lens

### 2.9.1 Attaching the lens

The lenses used on the Sinar arTec camera are from the "Sinaron Digital CEF" line of lenses, which are equipped with a focusing mount.

To attach the lens, insert the lens board into the Lens carrier frame straight from above (see figure 15). Now swing the lens upwards with gentle but secure pressure until the brass-colored Lens latching slider becomes completely visible (also see figure 17). Make sure that the lens is installed securely by grasping it in a controlled manner.



Fig. 15: Attaching the lens



Fig. 16: Latching the lens board



Fig. 17: The lens latching slider



Make sure that the lens is installed securely by grasping it in a controlled manner.

### 2.9.2 Removing the lens

In order to remove the lens from the camera, first disconnect the Trigger cable [42] from the X-contact of the shutter [33]. Grasp the lens with one hand and use the other hand to shift the Lens unlocking slider [22] of the camera to the left. Now you can lift the lens from the camera.



To prevent damage to the lens elements, always install the protective covers when the lens is not in use.



## 2.10 How to Operate the Sinaron Digital CEF Lens



Fig. 18: Sinaron Digital CEF Lens

- 31** The shutter
- 32** Shutter cocking lever
- 33** X-Flash synchronization socket
- 34** Shutter setting knob
- 35** Shutter speed setting ring
- 36** Shutter release with a receptacle for a cable release
- 37** Aperture setting knob
- 38** Focusing ring
- 39** Lens board

The shutter built into the Sinaron Digital CEF lenses is a traditional mechanical between-the-lens shutter of the type that has been in use for professional photography for many years. For those who are not familiar with this type of shutter, the comments that follow are intended to explain its proper operation:

### 2.10.1 Viewing the subject

The lens features two modes: The Viewing mode and the Exposure mode. In order to observe the subject through the lens, the shutter has to be open. The shutter **[31]** can be opened or closed by means of the Shutter setting knob **[34]**.

### 2.10.2 Focusing

Focusing the lens on the subject is achieved by turning the Focusing ring **[38]**. The small f-stop numbers arranged symmetrically around the index line serve to indicate the depth of sharpness for the aperture that is being used. The numbers on the focusing ring itself serve to indicate the distance at which the lens is focused (in meters and feet).

### **2.10.3 Setting the shutter speed**

The shutter speed is selected by means of the Shutter speed-setting ring [35]. Shutter speeds ranging from 1/500 to 1 second can be selected, plus "B" (Bulb) and "T" (Toggle). With the "B" setting, the shutter remains open as long as the Cable release [41] is pressed. With the "T" setting, the shutter opens when the Cable release is pressed once and it remains open until the cable release is pressed for a second time.

### **2.10.4 Setting the aperture**

The working aperture is set by means of the Aperture setting knob [37]. The range of f-stops may vary for different lenses. For the best possible light transmission, the subject should be viewed with the shutter set at its maximum aperture.

### **2.10.5 Cocking the shutter**

Because the shutter is completely mechanical, it has to be cocked manually before every exposure by means of the Shutter cocking lever [32].

### **2.10.6 The exposure**

In order to release the shutter, the Cable release has to be threaded into the receptacle on the Shutter release lever [36] and the shutter must be closed by means of the Shutter setting knob [34]. In addition, the shutter must be cocked by operating the Shutter cocking lever [32]. Only then can the exposure be made.

## 2.11 Connecting the Cables

1. Connect the digital back with the flash socket [33] on the shutter, using the Trigger cable [42] that is supplied for this purpose, one end of which is plugged into the Trigger socket [45] on the digital back and the other end is plugged into the Flash synchronization socket [33] on the shutter.
2. Thread the Cable release [41] into the Shutter release lever [36] on the shutter.




Fig. 19: Sinar arTec with attached release cables



Fig. 20: Connector sockets on Sinarback eMotion 75/54


- 41 Manual Shutter release cable
- 42 Trigger cable
- 43 X-Flash synchronization socket
- 44 Firewire socket
- 45 Trigger-in socket
- 46 Winder-out socket

 For proper operation and the handling of your digital back please read the operating instructions supplied with the respective digital back.

## 2.12 Photography on Film

### 2.12.1 General

The Sinar Artec HB-V camera can also be used to capture images on roll film. This requires the use of a Hasselblad V Roll Film Magazine (for instance: Type A12-6x6).

 Please note that certain Sinaron Digital CEF lenses have image circles that do not cover the entire area of a 6x6 cm frame on roll film. This is the case with Sinaron Digital CEF lenses VHR 5.6/23 mm, HR 4.5/28 mm and HR 4.0/35 mm.



 Also please note that 645-size Hasselblad V roll film magazines (such as Type A16-645) can only be used for landscape format images.




Bild 21: Sinar arTec HB-V with a Film Magazine

### 2.12.2 Photographs on roll film

1. First load a film into the roll film magazine and wind it to the first frame (to this end, please follow the instructions that come with the Hasselblad roll film magazine). The roll film magazine can be coupled to, and uncoupled from the Sinar arTec HB-V camera exactly like a digital back with a Hasselblad-V interface (please also see chapter 2.4).
2. With the Sinar arTec camera in the Viewing position, you can now compose your picture on the focusing screen.
3. When you have finished composing the image, shift the Sinar arTec to the Exposure position.
4. Remove the Cover slide from the film magazine so that the film can be exposed.
5. Make the exposure by activating the Cable release attached to the lens' shutter.
6. Now you can advance the film to the next frame (please see chapter 2.12.3) or put the Cover slide back into the roll film magazine so that you can remove it from the camera (see chapter 2.4).

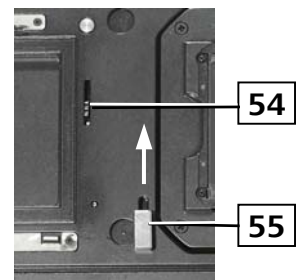
	Please note that the double-exposure prevention feature does not work when a Hasselblad V Roll Film Magazine is used on a Sinar arTec camera.
---	---

	Please make sure that the Cover slide is inserted into the roll film magazine properly before removing the magazine from the Sinar arTec camera.
---	--

### 2.12.3 Advancing the film

The Sinar arTec HB-V camera is equipped with a mechanism to advance the film [54]. In order to advance the film to the next frame after an exposure has been made, press the Film advance button [55] upwards repeatedly, always letting it return to the rest position between strokes, until the exposure-ready signal window (on the right side of the exposure counter window) on the roll film magazine shows white again. To make this procedure a little easier, shift the Focusing magnifier a bit out of the way.

The film advance slider has to be shifted approximately 12 to 14 times.

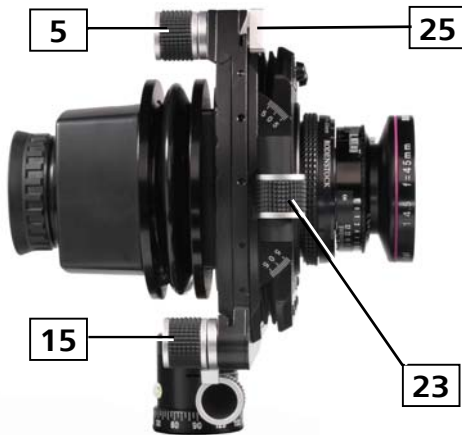


*Fig. 22: Advancing the film on a Sinar arTec HB-V*

## 3 Image Settings and Exposure

### 3.1 Possibilities of Image Settings

The Sinar arTec permits all kinds of adjustments, just as we are familiar with them from view camera systems: Horizontal and vertical shifts as well as tilts and swings. The Sinar arTec camera's operating elements used most often for tilts are user-friendly and they are positioned at the back of the camera (see figure 23).



- 5 Micro drive for horizontal shifts
- 15 Micro drive for vertical shifts
- 23 Micro drive for tilts
- 25 Locking lever for rotations/swings

Fig. 23: All the important operating elements are arranged ergonomically and they can be operated conveniently from the photographer's position

### 3.2 Horizontal and Vertical Shifts

#### 3.2.1 Fundamentals of vertical perspective correction

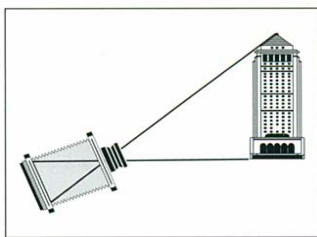


Fig. 24a: Uncorrected converging lines (for instance with a rigid camera)

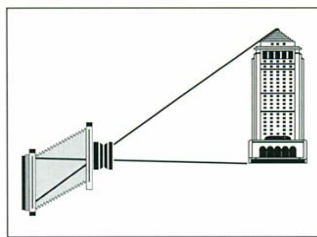


Fig. 24b: Fully corrected converging lines (e.g. with the Sinar arTec or a view camera)

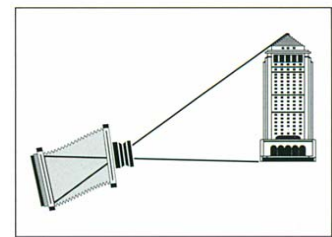


Fig. 24c: Partially corrected converging lines (e.g. with the Sinar arTec or a view camera)

The vertical shift is the most frequently used **perspective correction** in architectural photography. This shift is used whenever converging lines in photographs of buildings are to be straightened. Converging lines occur when, for example, a tall building is to be photographed from ground level, so that the camera has to be tilted upwards to cover the full height of the building. As soon as the image plane is no longer vertical – and thus no longer parallel to the front of the building – parallel lines on the front of the building will no longer appear parallel on the focusing screen. Instead they will be shown with a converging perspective.

### 3.2.2 Vertical perspective correction with the Sinar arTec

With the Sinar arTec camera, converging lines can be avoided by not tilting the camera upwards, but by shifting the image circle upwards instead. For this purpose one uses the Micro drive for vertical shifts **[15]** (also see figure 24 and figure 5) until the entire building is included in the image.

To perform this shift, first loosen the Locking lever **[16]**, and then use the Micro drive **[15]** to make the vertical shift to the desired extent and lock it in that position by tightening the Locking lever **[16]** again. A scale on the back of the vertical sliding board is calibrated in mm to serve as a reference in case that setting is to be repeated later on.

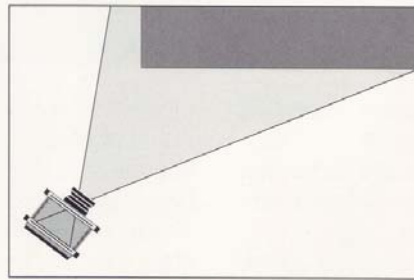


*Fig. 25: Sinar arTec with applied vertical and horizontal displacements*

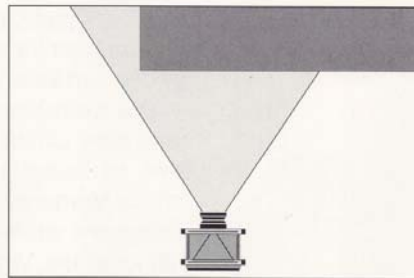
### 3.2.3 Fundamentals of horizontal perspective correction

Horizontal perspective compensation is frequently needed in photographs of building facade, but very often it is also necessary in the photography of objects, such as packaging. Straight lines are reproduced as parallel lines, which is the way a viewer expects them to be. When such lines are not parallel in a picture made by a professional photographer, the picture is considered to be bad and unprofessional. This is one of the principal reasons why adjustable view cameras are used in professional photography.

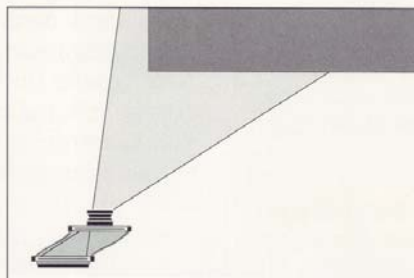




*Fig. 26a:*  
When a building is photographed without using the camera movements showing both the front surface and the side of the building, the front facade perspective is bound to converge drastically.

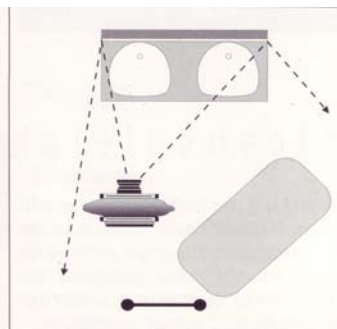


*Fig. 26b:*  
When the front of a building is to be shown without converging lines and without using camera movements, the side view of the building disappears. In this case the camera viewpoint is exactly perpendicular to the facade.

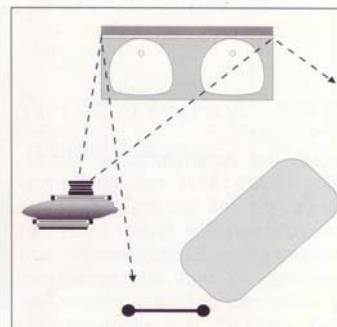


*Fig. 26c:*  
Only a view camera with movements is capable of depicting a building and its side with the front straightened out. The image plane is set parallel to the front of the building and strongly shifted laterally.

Lateral shifts are also used frequently for interior photographs with the purpose of reproducing vertical lines correctly, meaning parallel, and to prevent the camera from becoming visible in the image, for instance on a mirror or a glass front. Such situations also occur in outdoor photography when display windows or buildings with glass fronts are to be photographed. The unwanted self-portrait of the photographer can be avoided very effectively with this simple camera adjustment.



*Fig. 27a:*  
Confined spaces in interior photography and large reflecting surfaces often create situations in which the camera itself and/or the photographer appear on a reflecting surface.



*Fig. 27b:*  
Lateral shifts preserve the parallel orientation of lines and the camera is no longer visible on the reflecting surface.

Illustrations 24, 26, and 27 from: Urs Tillmanns: "Creative Large Format: Basics and Applications". Sinar Edition, Verlag Photographie, Schaffhausen 1992

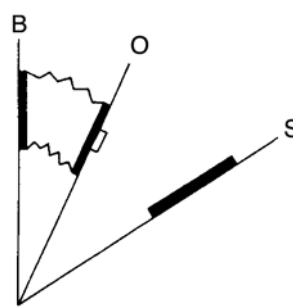
### 3.2.4 Horizontal Perspective correction with the Sinar arTec

To perform a horizontal shift on the Sinar arTec, first loosen the Locking lever [6], then use the Micro drive [5] to make the horizontal shift to the desired extent and lock it in that position by tightening the Locking lever [6] again. A scale [4] above of the horizontal Slider [1] is calibrated in mm to serve as a reference in case that setting is to be repeated later on (see also chapter 3.4.2).

## 3.3 Swings and Tilts

### 3.3.1 General

Swings and tilts affect the position of the plane of sharpness. On a rigid camera with a fixed lens, the plane of sharpness is always parallel to the image plane. The Sinar arTec camera makes it possible to deliberately position the plane of sharpness along an element of the image. The focus can, for example, be placed along the wall of a house. This setting follows the principle named for its discoverer, namely the Scheimpflug Principle. This principle states that the image-, lens- and sharpness planes are either parallel or that the extensions of those planes converge along a common line.



B = Image Plane  
O = Lens Plane  
S = Plane of Sharpness

Fig. 28:  
The Scheimpflug  
Principle

### 3.3.2 Tilting

Tilting is performed directly by means of the self-locking micro drive [23] (also see the diagram on page 6). To set a tilt, first loosen the zero-position stud [24], which is located on the side opposite to the Lens carrier frame [21] and then set the desired tilt of the lens board.



On **Sinar arTec Hy6 cameras of the first series**, the zero-position stud [24] must first be unscrewed a bit. The tilt can then be set and when that has been done, the respective locking lever has to be tightened. The zero-position stud secures the horizontal position to prevent heavy lenses from tilting because of their weight.

### 3.3.3 Swings

If you do not want to tilt the plane of sharpness vertically, but you want to set a horizontal swing, the unlatching lever [25] has to be pressed upwards and the Lens carrier frame [21] has to be rotated around the optical axis. The swing can be set in a stepless manner for 360°. There is a click stop at each 90° position. To serve as an orientation aid, there is a scale at the bottom of the Lens carrier frame, calibrated in 10° steps, on which the 30° and the 60° swings are indicated with bold markings.



Fig. 29: The Sinar arTec camera with rotated Lens carrier frame for combined tilt and swing



## 3.4 Step by Step Towards the Exposure

### 3.4.1 Image settings

1. With the Sinar arTec being in Viewing position (see figure 30a) set the lens to viewing mode by opening the shutter **[34]** and opening the aperture to maximum **[38]** (also see chapter 2.9).
2. Set all the desired movements (camera position, perspective, vertical and/or horizontal displacements, swing/tilts, and focus)
3. When you have finished composing the picture and you made all the settings in the Viewing position set the desired shutter speed **[35]** and f-stop **[37]** on the shutter of the lens.
4. Close the shutter **[34]**.
5. Cock the shutter **[32]**.
6. Switch the digital back on.  
Of course, the digital back can also be switched-on at an earlier time. However, in order to save battery power, with cold weather it can be useful to switch-on the digital back just before the image is taken.

### 3.4.2 Changing between Viewing position and Exposure position

7. When you have finished composing the picture and you made all the settings in the Viewing position (see figure 30a), shift the camera Slider into the Exposure position (see figure 30c). To this end, activate the Unlatching key **[2]** and move the Slider **[1]** slightly to the right, let go of the Unlatching key and then shift the Slider the rest of the way to the right until it clicks into position on its own. The easiest way to perform the change in position is to shift the digital back with one hand while (see figure 30b) grasping the camera with the other hand.

To move the Sinar arTec from the Exposure position to Viewing position, just proceed in the reverse sequence.



A unique feature of this procedure is the advantage that the amount by which the horizontal shift was made in the Viewing position on the Sinar arTec camera is also automatically transferred to the Exposure position.

8. Activate the Cable release **[41]** (after first having attached it to the Shutter release **[36]**)



Fig. 30a: Viewing Position



Fig. 30b: Shifting the Slider



Fig. 30c: Exposure Position

## 4 Accessories for the Sinar arTec Camera

### 4.1 Lenses

The **Sinaron Digital CEF** Series of **Lenses** are made for use on the Sinar arTec camera. Sinaron Digital lenses were designed specifically to meet the high demands of digital photography. All Sinaron Digital Lenses have the resolving power of at least 50 pairs of lines/mm all the way to the edge of the image circle. Sinaron Digital HR Lenses feature a resolving power of at least 60 line pairs/mm and Sinaron Digital VHR Lenses even boast a resolving power of at least 80 line pairs/mm. This ensures that the resolving capability of a modern digital back can really be used to its best advantage.



Fig. 31: Sinaron Digital CEF lens

Item No.	Description	Apertures	Angle of View	Img.Circle [ mm ]	Focusing Distance	Lens Adapter Ring
445.87.156	Sinaron Digital VHR 5.6/23 CEF	5.6 – 45	112°	70	0.3 m – ∞	M72R 547.81.066
445.87.158	Sinaron Digital HR 4.5/28 CEF	4.5 – 32	101°	70	0.3 m – ∞	M72R 547.81.066
445.87.160	Sinaron Digital HR 4.0/35 CEF	4.0 – 32	90°	70	0.4 m – ∞	M67 547.81.055
445.87.103	Sinaron Digital 4.5/45 CEF	4.5 – 32	95°	100	0.6 m – ∞	M67 547.81.055
445.87.105	Sinaron Digital 4.5/55 CEF	4.5 – 32	93°	120	0.9 m – ∞	M67 547.81.055
445.87.164	Sinaron Digital HR 4.0/60 CEF	4.0 – 32	67°	80	0.7 m – ∞	M49 547.81.051
445.87.107	Sinaron Digital 5.6/70 CEF	5.6 – 45	70°	100	0.8 m – ∞	M58 547.81.053
445.87.109	Sinaron Digital 5.6/90 CEF	5.6 – 45	76°	140	1.3 m – ∞	M67 547.81.055
445.87.168	Sinaron Digital HR 4.0/100 CEF	4.0 – 45	44°	80	1.8 m – ∞	M58 547.81.053
445.87.113	Sinaron Digital 5.6/135 CEF	5.6 – 45	58°	150	3.0 m – ∞	M49 547.81.051

The shutters in all lenses feature exposure times of 1/500 to 1 second, plus B and T

### 4.2 Lens Adapter Rings

Lens Adapter Rings are designed to be screwed into the filter thread at the front end of a lens. This makes it possible to mount various accessories on an adapter ring for universal applications. Because various lenses may have different front rim diameters, respectively appropriate adapter rings will be required. The *outer* [front] diameter of *all* adapter rings is 100 mm (4 inches) and the accessories are tailored to that dimension.

The appropriate Lens adapter ring required for every Sinaron Digital lens is listed in the table in Chapter 4.1.



Fig. 32a: Lens Adapter Ring



Fig. 32b: Lens Adapter Ring attached to a lens

### 4.3 White Shading Diffusor



Fig. 33a: White Shading Diffusor



Fig. 33b: Sinar arTec with attached Shading Diffusor

The White Shading Diffusor 551.43.097 is mounted on the lens by means of a Lens Adapter Ring for use in making a shading exposure. The latter serves mainly for the computed compensation of the systemic vignetting towards the edges of the image.

Additional information concerning shading exposures and their practical application in the exposure software Sinar eXposure™ can be found in Chapter 5.2.

The White Shading Diffusor is included with both the Sinar arTec Hy6 493.23.000 and the Sinar arTec HB-V 493.23.001 cameras. This accessory is also available separately as Item Number 551.43.097.

### 4.4 Filter Rod Holder

The optional Filter Rod Holder (see figure 33), in combination with a Filter Rod (see figure 34), serves for the attachment of additional accessories, such as a Swiveling Polarizing Filter, or a Bellows lens hood.

The Filter Rod Holder 493.23.043 can easily be attached to the Lens Carrier Frame by means of two screws.



Fig. 34: Sinar arTec with optional Filter Rod Holder

Filter Rods are available in three lengths and also in a version with two adjustable joints:

- Filter Rod 11 cm: Item No. 472.61.000
- Filter Rod 16 cm: Item No. 472.71.000
- Filter Rod 25 cm: Item No. 472.81.000

- Joint Rod: Item No. 472.51.000



Fig. 35a: Filter rods in three different lengths

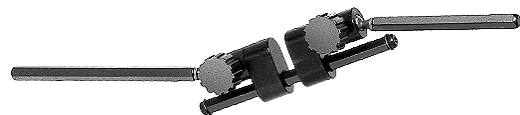


Fig. 35b: Joint rod

## 4.5 Lens Shade

### 4.5.1 Why should you use a lens shade?

With an unprotected lens, stray light from outside the subject area can reduce the contrast noticeably. That is why a lens shade is an indispensable tool in professional photography. But a lens shade can only provide the best protection against stray light when it is optimally tailored to the angle of view, and the Sinar System offers several solutions for that purpose.

Because there are diverse kinds of stray light sources and different types of lenses, Sinar offers two different types of lens shades: The compact and universally applicable, one-piece adjustable "Artec Lens Shade" (fig. 36) and the alternative of a Bellows lens hood that can be assembled from existing elements from the Sinar Modular System (figure 37).

### 4.5.2 Artec Lens Shade

The one-piece Artec Lens Shade consists of two folding- and two sliding panels and it is affixed to the Lens Adapter Ring by means of a manual fastening screws (also see Chapter 4.2).

The Artec Lens Shade can be rotated freely around the Lens Adapter Ring, so that it can be tailored to every source of stray light. In addition, this lens hood is designed for universal applications, so that it can be used with lenses of all focal lengths.

Artec Lens Shade:  
Item No. 493.23.041



*Fig. 36: Lens on a Sinar arTec camera with affixed Artec Lens Shade*

### 4.5.3 Bellows Lens Hood

The following elements are required for assembling a Bellows Lens Hood from existing elements of the Sinar Modular System:

Artec Filter Rod Holder  
Item No. 493.23.043  
Filter Rod 16 or 25 cm  
Item No. 472.71.000 or 472.81.000  
Bellows Holder Clip  
Item No. 473.31.000  
Tapered Bellows 4x5/100  
Item No. 452.16.010

An appropriate Lens Adapter Ring for the lens that is being used (also see Chapter 4.2)



*Fig. 37: Lens on a Sinar arTec camera with affixed Bellows Lens Hood*

## 4.6 Swiveling Polarizing Filter

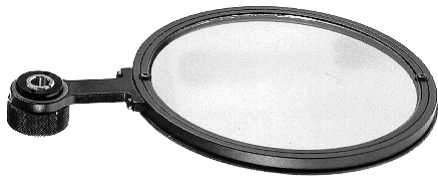


Fig. 38: Swiveling Polarizing Filter



Fig. 39: Sinar arTec with optional Polarizing filter

Polarizing filters can be especially useful for eliminating distracting reflections in outdoor photography. The Sinar Swiveling Circular Polarizing Filter can be mounted on the Sinar arTec camera by means of the optional Filter Rod Holder and a Filter Rod (also see chapter 4.4). This makes it possible very conveniently to swing the filter away from the lens or out of the light path at any time. Its positioning on the Filter Rod is freely adjustable. The diameter of the Sinar Circular polarizing Filter is 110 mm (4½ inches).

Swiveling Circular Polarizing Filter:

Item No. 546.31.010

Swiveling Linear Polarizing Filter:

Item No. 546.31.000

## 4.7 Accessory Shoe

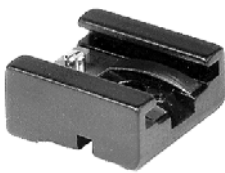


Fig. 40: Sinar Accessory Shoe



Fig. 41: Sinar arTec with attached accessory shoe

An optional Accessory shoe on the Sinar arTec camera allows the attachment, for example, of a remote flash trigger, or an auxiliary viewfinder. Please note that the Accessory shoe itself does not have any flash contacts. The Accessory shoe is inserted in the groove along the top of the camera and it is fastened in place by using a small Philips head screwdriver.

Accessory Shoe:

Item No. 531.61.000

## 5 Compensation of the Light Fall-off of a Lens With Shading

### 5.1 General


Shading files are used in professional digital photography work. A Shading file is a white reference image that describes the light fall-off of a particular setting. This unwanted fall-off can be corrected by means of appropriate computations. When photographs are created directly on a computer by using the Sinar eXposure™ Software, a Shading calibration is made at the beginning of a scene (in the "Exposure" menu). After that step, the Shading correction is incorporated automatically into every image.

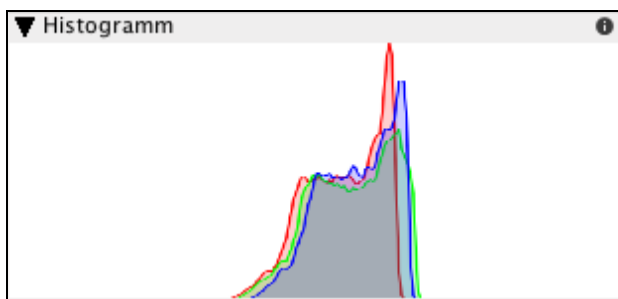
If, however, outdoor photography is being performed without a computer (untethered), one can still create a Shading exposure, but it must later be identified as such in the Sinar eXposure™ software and it has to be assigned to the respective images.

### 5.2 Creating a Shading File

Light fall-off is on dependence of the aperture setting, on the lens and the corrections made on the image (shifts and swings). The greater the movements of the lens is, the stronger the light fall-off towards the edges of the image will be. When the lens has been moved too far, the edge of the image circle will appear in the picture. Such artifacts are to be avoided, of course, as they cannot be eliminated, even by means of the Shading correction.

When all the image settings have been completed, the correct shutter speed for the exposure must be determined. After that step, attach the White Shading Diffusor (item no. 551.43.097) to the Lens Adapter Ring and make a Shading exposure. Because the diffusor absorbs approximately two aperture stops of brightness, the exposure has to be compensated by doubling or quadrupling the exposure time. This exposure compensation cannot be accomplished by increasing the aperture of the lens, because this would lead to another form of light fall-off.

	<p>It is important for the Shading exposure not to be clipped (see figure 42). This means that neither the left side, nor the right side of the histogram curve should touch the edges of the diagram. You can check the histogram of the Shading exposure directly on the digital back as well.</p>
---	--



*Fig. 42: Histogram of a correct Shading exposure. Note that neither the left end nor the right end of the curve is clipped.*



*Fig. 43: In this example, the right end of the Shading histogram curve is clipped. Shading images with histograms that are "squeezed" against the left or the right side of the scale lead to inaccurate Shading corrections.*



## 5.3 Using a Shading Image in the Sinar eXposure™ Software

### 5.3.1 Preparation

You have already installed the Sinar eXposure™ Software Version 6.1.1 or higher on your computer and you are already familiar with its current functions. The section that follows supplements the integrated help function of the Sinar eXposure™ software.

In order to make the shading function more readily accessible, it is worthwhile to add it to the toolbar: In the "View" menu, go to the "Toolbar" and select "Customize toolbar...".



Fig. 44: Add the Shading function to the Toolbar of the Sinar eXposure™ software

There you will find an ample selection of function icons. Select the "Shading Mode" icon and drag-and-drop it into the toolbar. As soon as you drag the icon into the toolbar, a place is opened for the new function.

### 5.3.2 Defining the Shading file and assigning it to the images

When you have your pictures in front of you on a Contact sheet, you can now call up the "Shading Mode". You will immediately see a small black square in the upper left corner of every image. That square is a control field that refers to the Shading files.

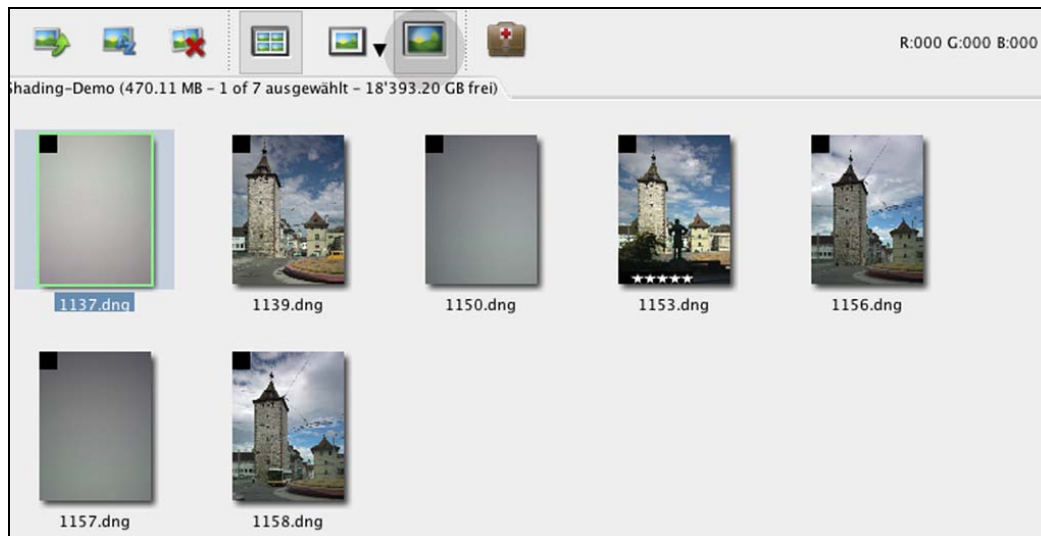


Fig. 45: Contact sheet in the Sinar eXposure™ software: Activating the Shading mode

Now mark all the images that you made with the Shading Diffusor by clicking on the small black square of every Shading file.

As soon as a shading data file has been defined, it will be applied to all the images that follow, until the next Shading file comes up.

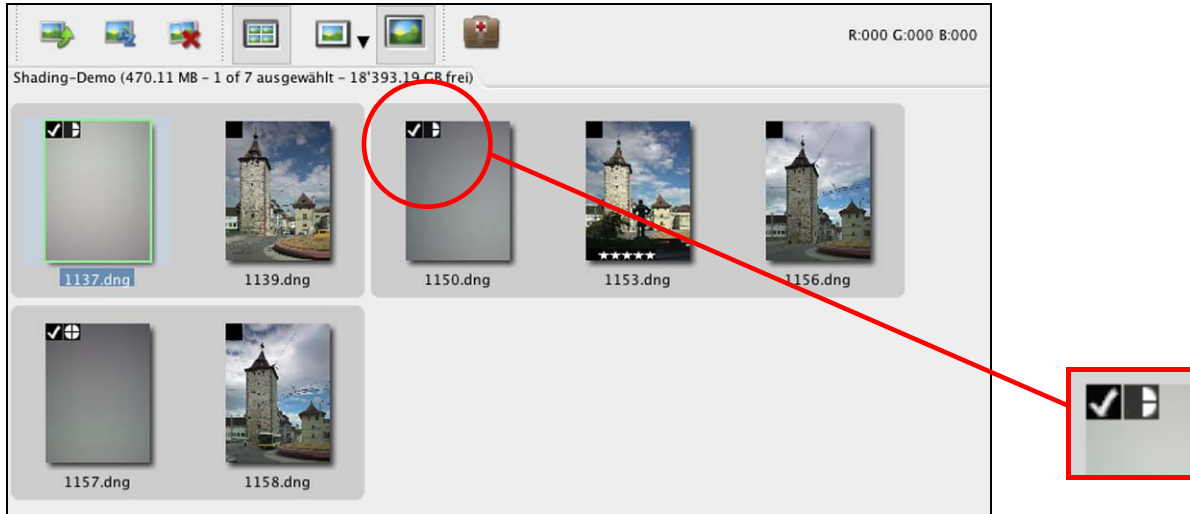


Fig. 46: Contact sheet in the Sinar eXposure™ software: Marked Shading images

The gray background that now surrounds the images designates the Shading file and the images to which it has been allocated.

The pie chart diagram on the right side indicates how strongly the Shading correction should be applied. With every click on that diagram, the correction is increased by a quarter.

### 5.3.3 Computing the Shading

The correction does not become visible right away, it can only be viewed after the images have been exported or transferred to another folder. In the latter case, a new DNG file is written, into which the shading correction has been incorporated.



Fig. 47: Left: Noticeable loss of brightness at the top of the tower and in the white cloud above it. Right: Homogeneous lighting across the entire image field, thanks to the Shading correction.