CASTEL-M

This stepping motor-driven focusing rail has been specially developed for focus stacking in close-up and extreme macro photography of, e.g., insects, minerals, scientific documentation and much more. The CASTEL-MICRO has a maximum travel distance of 100 mm and its smallest repeatable step size is 0.2 micrometer.

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Information

For more information, advice and tips concerning our products contact your photo dealer, the distributor of NOVOFLEX products in your country (have a look at "Where to buy" section at our website to find your distributor) or visit our website www.novoflex.com

For personal advice about possible accessories which is suitable for your NOVOFLEX product please contact the following phone number or send us an E-mail.

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NOVOFLEX

Automatic Bellows Unit BAL-HAX

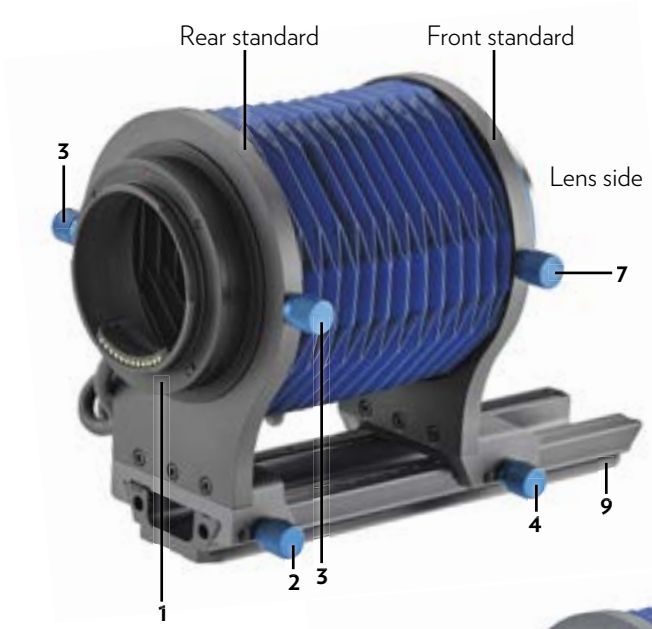
USER MANUAL

NOVOFLEX

Assembly example: Use with optional accessories

Nomenclature

1	Camera connector	6	Drive knob bellows extension
2	Locking screw rear standard	7	Locking screw for lens connector (2x)
3	Locking screw for camera connector (2x)	8	Connection cable
4	Locking knob bellows extension	9	Dovetail guide (ARCA-type)
5	Lens connector	10	Release button lens



For better illustration, the right and left views are shown here.

Accesories

Adapter, stepping ring and protective filter

To mount the lens in the reverse position on the bellows unit, you need the **PRO/RETRO** adapter ring (11) and a **stepping ring** (12) to 58mm if your lens has a filter thread with a different diameter.

Lens filter diameter	**Stepping ring (12) for reverse position (ordercode):**
58mm	not necessary
62mm	REDUZIERRING 58/62
67mm	REDUZIERRING 58/67
72mm	REDUZIERRING 58/72
77mm	REDUZIERRING 58/77

In order to protect the rear lens of your lens in the reverse position in the extreme macro range, we recommend the protective filter **FILPROTECT 77** (13).

Tip: Using manual lens heads, magnifying lenses or lenses with the 39mm Leica thread is possible for special purposes. For this, adapter rings are available as optional accessories. We are happy to advise you in this regard!

Focusing rail

Focusing in (extreme) macro photography should not be done by autofocus or turning the focusing ring of the lens, but by changing the distance between the camera system and the subject. Since even small changes here determine the distribution of sharpness in the image, we recommend using a NOVOFLEX focusing rack from the CASTEL series. These include, among others:

CASTEL QP

The CASTEL-QPs clamping runs parallel to the rail, and as such this focusing rail is the perfect add-on to any NOVOFLEX bellows unit. Also, macro lenses with a tripod collar and a longer coupling plate underneath will benefit from CASTEL-QP. It can be mounted on any tripod head or directly, using the lower ARCA-type dovetail profile on the Q=BASE II or Q=MOUNT quick-releases.

Operation

When doing close-up and macro shots, the image section (magnification) is only determined by the length of the bellows extension. You can change the length with the drive knob (6). Use the locking screw (4) to loosen or clamp the pinion.

Focusing is done by changing the shooting distance. With freehand shots, this is achieved by changing your posture. When shooting from a tripod or on the repro stand, this is done by moving on a focusing rack that is mounted under the bellows unit. You can find recommended focusing racks starting on page 7.

Practical Tips

- Switch off the autofocus of your camera or your lens, as this overdrives in most cases. Focusing in the macro range is usually done by changing the shooting distance.
- Since the current lens designs are extremely different today, it is no longer possible to establish a general rule between the bellows extension and the magnification. In order to determine the magnification individually for your system, proceed as follows: Take a vertical photo of a ruler with the desired bellows extension and determine the width of the image in mm. Then divide the sensor width of your camera by the value determined in this way. Example: With a medium format camera (44mm sensor width) and 22mm image, you have a magnification of 2:1 (44:22=2:1).
- The depth of field depends only on the magnification and the aperture. For close-up and macro shots, the depth of field is shallow. As a basic rule you can remember: With f-stop 8 and a magnification of 1:1, it is approx. 1 mm. Stopping down by two values doubles the depth of field, two stops larger reduce it by half.
- Achievable magnifications on the BAL-HAX:

  Hasselblad XCD 2.5/55: **1.2 - 4.4:1**
  Hasselblad XCD 2.5/90 **1:1.3 - 2.9:1**
  Hasselblad XCD 3.5/120 Macro: **0.5 - 2.9:1**
  Hasselblad XCD 2.8/135: **1:1.7 - 1.8:1**

- The included HAX-RETRO reverse adapters can also be used without the bellows unit to mount a lens in the reverse position directly on the camera. This may require a stepping ring to 77mm if your lens has a filter thread with a different diameter.

Lens connector (5) with release button lens (10)

Oblique view from above: The scale shows the bellows extension

Congratulations on the purchase of your new automatic bellows unit BAL-HAX. Even if the operation is very simple, we want to give you some tips on how to handle your automatic bellows unit from the very beginning.

Product Description

The automatic bellows BAL-HAX enables Hasselblad-X photographers to penetrate the near and macro range while retaining all the control functions of their camera. All electronic functions and information are transferred between the camera and the lens.

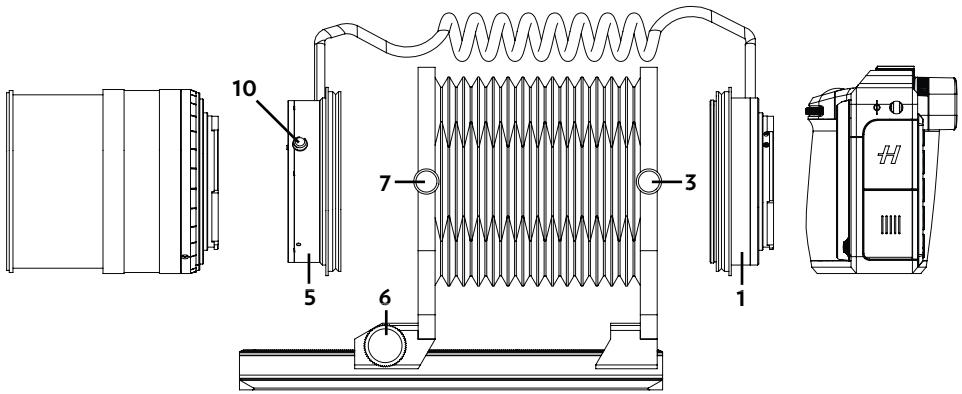
The BAL-HAX is suitable for all cameras of the Hasselblad X-System and for all Hasselblad lenses of the XCD-Series. The lens can be mounted on the front standard in the normal position or in the reverse position. The latter requires the PRO/RETRO adapter and, if necessary, a stepping ring to 58mm if your lens has a filter thread with a different diameter.

The automatic bellows unit consists of the reverse adapters HAX-RETRO with camera connector (1), lens connector (5) and connection cable (8), the bellows unit BALPRO 1 with drive knob (6) and locking knop (4). The camera and lens connectors are attached to the rear and front standards of the bellows with the aid of two locking screws (3) and (7) each.

The bellows extension can be changed with the drive knob (6) when the locking screw (4) is open. It is fixed by closing the locking knob (4). For reproducible work, the bellows extension can be read off the scale on the guide rail from above. For mounting on a quick-release unit of the NOVOFLEX Q=System (ARCA-compatible), the rail has a dovetail guide (9) on the underside. The safety pin of a NOVOFLEX quick-release engages into the milling cut-out and prevents unintentional slipping out of the rack if the corresponding clamping screw was accidentally not fully tightened. Alternatively, the 1/4 “or 3/8” threaded holes can be used for mounting on a focusing rack or tripod head.

Assembly of all components

Lens in normal position (delivery condition)



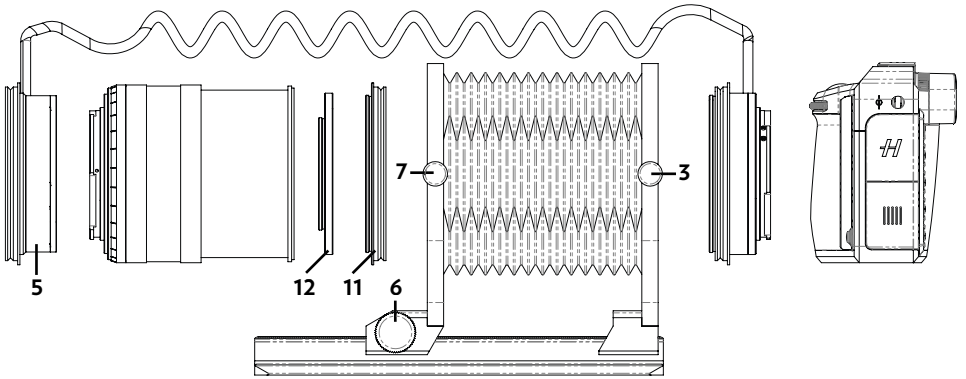
1. The camera connector (1) of the reverse adapters is inserted and locked in the camera bayonet accordingly.
2. The lens connector (5) of the reverse adapters is placed and locked on the lens bayonet accordingly

Important: When attaching, do not hold the release button (10) and turn the lens at the same time until it stops. This could cause some cameras and lenses to lose connection. Use the release button (10) for releasing the lens only!

3. Now insert both units into the connection openings of the bellows unit and lock them to the standards with the blue locking screws (3 and 7).
4. To disassemble, release the corresponding unlock button on the camera body. To dismount the lens connector of the reverse adapters from the lens, push the unlock button (10) in the direction of the engraved arrow.

Tip: With the XCD 2.5/55V in the normal position, the maximum magnification of the lens can be increased from 1:6.4 to impressive 4.4:1 with the help of the BAL-HAX when fully extended.

The lens in reverse position on the bellows unit



Note: Additional accessories are required for this type of installation, which are not included in the scope of delivery:

- Adapter PRO/RETRO
- Stepping ring REDUZIERRING 58/xx (xx means the filter thread of your lens in mm)
- The protective filter FILPROTECT 77 is recommended, but not absolutely necessar

1. The assembly on the rear standard corresponds to the type of assembly already described in the normal position.
2. The PRO/RETRO (11) adapter is required for the front standard. If the lens has a filter thread other than 58mm on the front, appropriate stepping rings (12) are required and available as special accessories (see page 7). The PRO/RETRO adapter is screwed into the filter thread of the lens, if necessary with the help of a stepping ring.
3. The lens connector (5) of the reverse adapters is placed and locked on the lens bayonet accordingly.
4. Since high magnifications often require very short shooting distances, we recommend mounting a protective filter such as the FILPROTECT 77 on the opposite side. The rear lens, which becomes the front lens in the reverse position, is thus protected from collisions with the subject. In addition, the ingress of dirt and moisture, e.g. when used outdoors, is prevented.
5. Now insert both units into the connection openings of the bellows unit and lock them to the standards with the blue locking screws (3 and 7).
6. To disassemble, release the corresponding unlock button on the camera body. To dismount the lens connector of the reverse adapters from the lens, push the unlock button (10) on the lens connector (5) in the direction of the engraved arrow. The lens is removed from the bellows unit in reverse order to the assembly described above.