

## *H101-NIKON-TI-S-ER*

### Compatible with the following XY stages

- Nikon Ti-S-E and Ti-S-ER

### Compatible with the following Okolab Controllers

- H101-BASIC-BL
- H101-CRYO-BL

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## 1. Components and dimensions

H101-NIKON-TI-S-ER includes the following components:

- **Chamber main body**, it is uniformly heated by means water circulation in water tight channels
- **Cover glass lid**. It is uniformly heated by means water circulation in water tight channels
- **Chamber riser**. It is a removable frame increasing the height of the chamber from 26 to 32 mm, often required when using multi-well (MW) plates

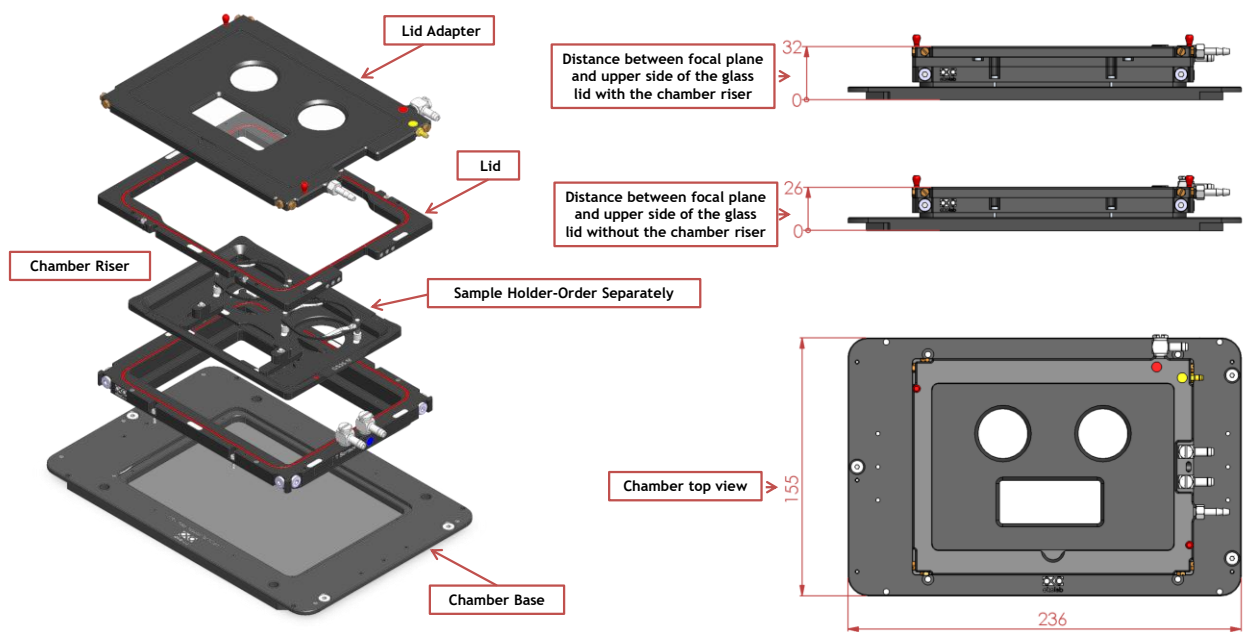


Figure 1. H101-NIKON-TI-S-ER - Components and Dimensions.

## 2. Sample Holders and Lid Adapters

### 2.1 Available Sample Holders

The following sample holders are available. H101-NIKON-TI-S-ER features a lid adapter for each sample holder (included in the sample holder code). Lid adapter fit into the chamber lid and is held in place by magnets embedded within both chamber lid and lid adapter as illustrated in Figure 3, Point A. Figure 2 shows the available sample holders and the corresponding lid adapters.

**NOTE:** Please contact [info@oko-lab.com](mailto:info@oko-lab.com) if you cannot find the sample holder you are looking for. We are constantly adding new inserts to the list.

H101-1x35-M	#1 35mm Petri-dish
H101-1xGS-M	#1 1x3in. chamber slide
H101-1xLABTEK-M	#1 Lab-Tek 1in.x2in. chambered cover glass
H101-1xLABTEK-II-M	#1 Lab-Tek II 1in.x2in. chambered cover glass
H101-1x60-M	#1 60mm Petri-dish
H101-1xT25-M	#1 Nunc and Greiner T25 flask
H101-2x35-M	#2 35mm Petri-dish
H101-2xGS-M	#2 1x3in. chamber slides
H101-2xLABTEK-M	#2 Lab-Tek 1in.x2in. chambered cover glass
H101-2xLABTEK-II-M	#2 Lab-Tek II 1in.x2in. chambered cover glass
H101-2x60-M	#2 60mm Petri-dish
H101-4x35-M	#4 35mm Petri-dish
H101-GS35-M	#1 1x3in. chamber slide and #2 35mm Petri-dish
H101-LABTEK-35-M	#1 Lab-Tek 1in.x2in. chambered cover glass and #2 35mm Petri-dish
H101-LABTEK-II-35-M	#1 Lab-Tek II 1in.x2in. chambered cover glass and #2 35mm Petri-dish
H101-LABTEK-60-M	#1 Lab-Tek 1in.x2in. chambered cover glass and #1 60mm Petri-dish
H101-LABTEK-II-60-M	#1 Lab-Tek II 1in.x2in. chambered cover glass and #1 60mm Petri-dish
H101-GS60-M	#1 1x3in. chamber slide and #1 60mm Petri-dish
H101-6035-M	#1 60mm Petri-dish and #1 35mm Petri-dish
H101-6MW	6-well plates, one MW LOCK required
H101-12MW	12-well plates, one MW LOCK required
H101-24MW	24-well plates, one MW LOCK required
H101-24MW-NUNC	24-well NUNC/GREINER plates, one MW LOCK required
H101-48MW	48-well plates, one MW LOCK required
H101-96MW	96-well plates, one MW LOCK required. It includes the insert for oil immersion imaging.
MW-LOCK-22.5	Magnetic lock to hold the standard MW plates in the chamber
MW-LOCK-16.5	Magnetic lock to hold the low-profile MW plates in the chamber

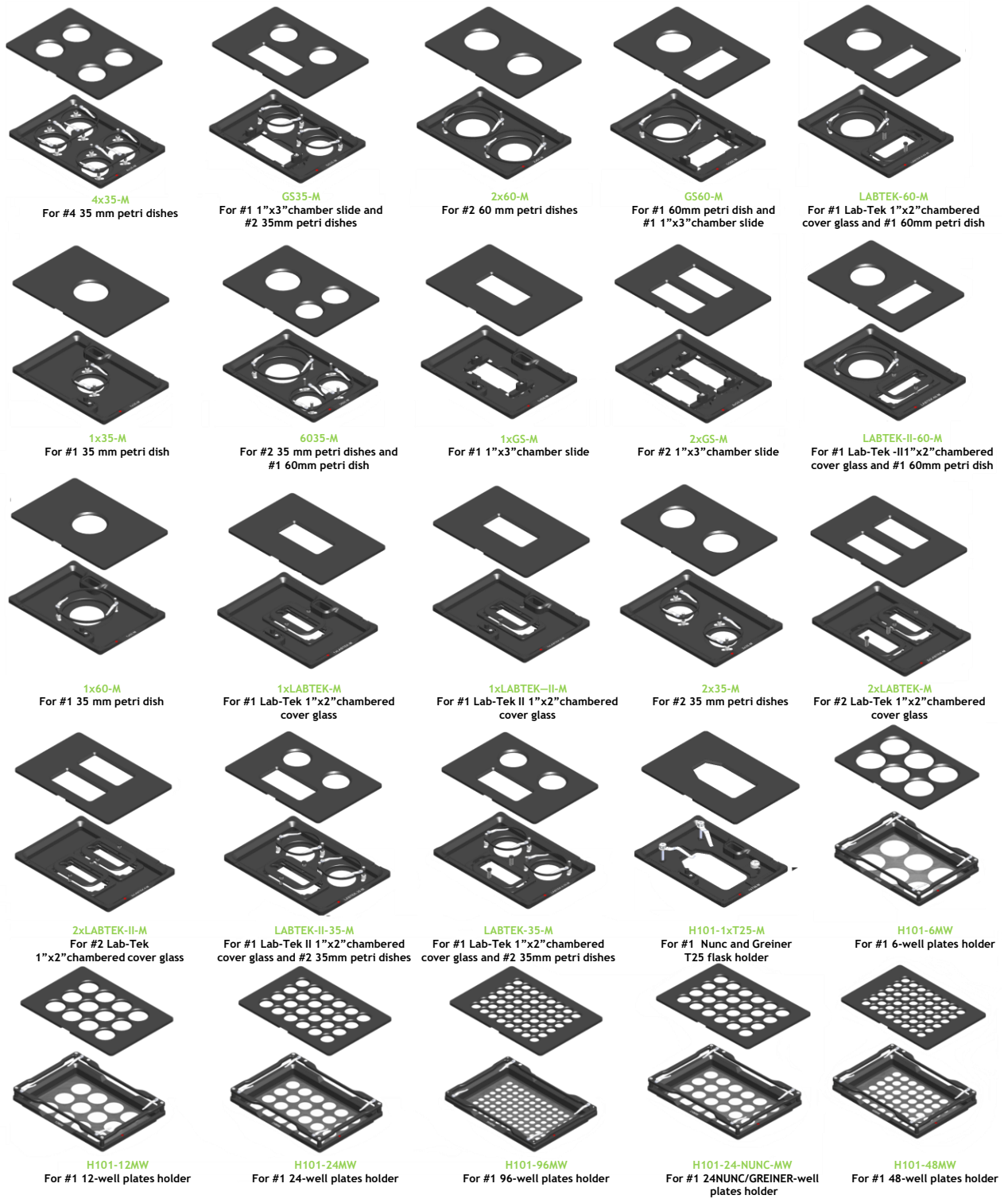


Figure 2. Available sample holders with corresponding lid adapters.

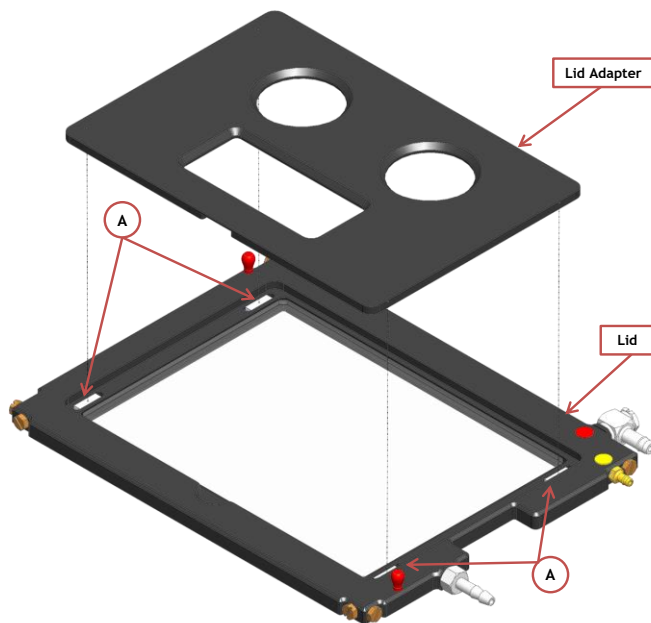


Figure 3. Assembly Lid Adapter to the Lid Chamber

### 3. Insertion of the Sample Feedback Temperature Sensor

Insert the Sample Feedback Temperature Sensor through the dedicated opening located in the H101-NIKON-TI-S-ER (see Figure 4, Frontal and 3D views).

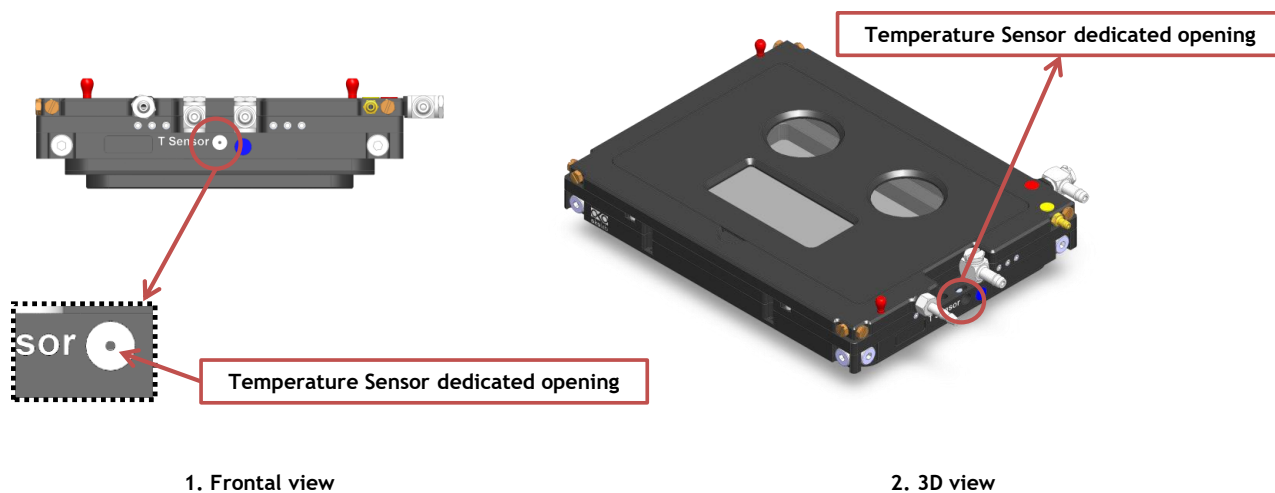


Figure 4. Insertion of the temperature sensor inside the chamber

### 4. Insertion of Sample Holder into Chamber

Sample holders fit into the chamber base and are held in place by magnets embedded within both chamber and holder. To introduce a sample holder with the proper orientation, match the red dot on the holder to the one on the chamber base, as illustrated in Figure 5.

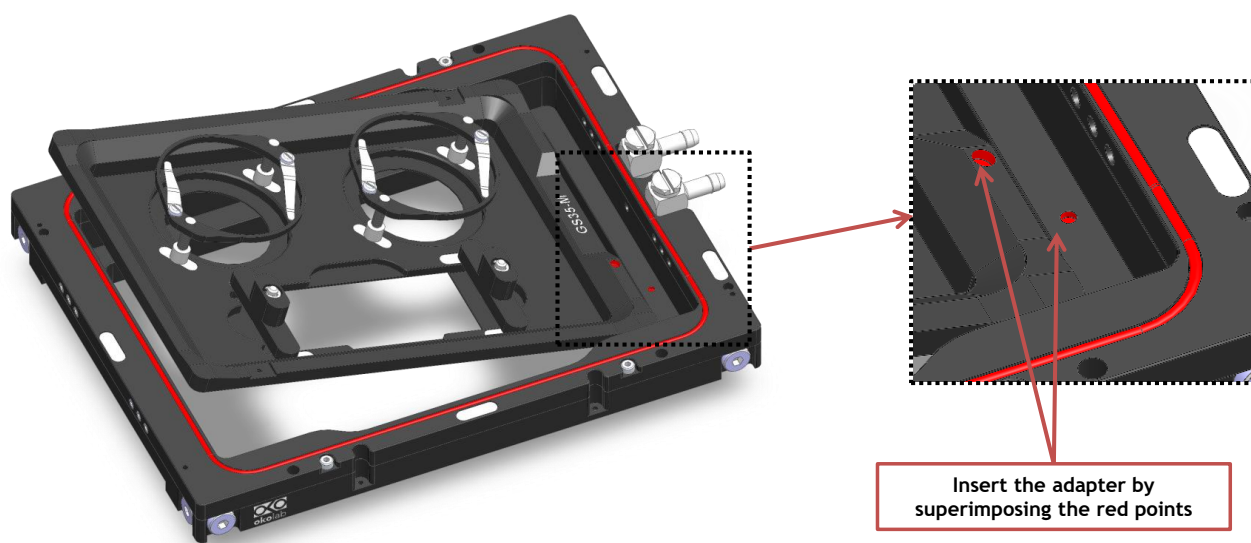


Figure 5. Introduction of the Specimen Holder inside the Chamber Base.

## 5. Working with 35 or 60 mm Petri Dish – Spacing Rings and Magnetic Locks

Magnetic locks prevent movement of 35 and 60 mm dishes inside the sample holder.

Figure 6 illustrates the available magnetic locks for 35 and 60 mm dishes. Threaded magnetic posts allow adjusting holder's height.

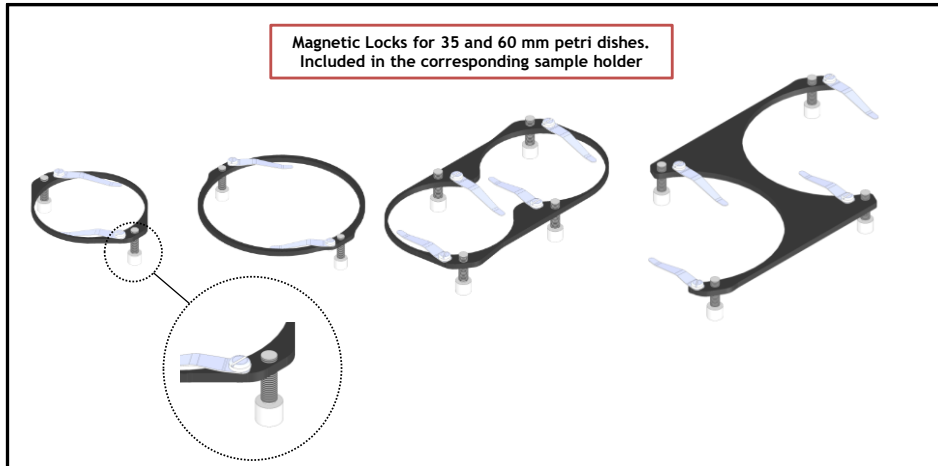


Figure 6. Magnetic locks for 35 and 60 mm dish

**NOTE:** Magnetic locks are included with sample holder.

Spacing rings accounting for variability in dish diameter from one manufacturer to another are also included. Figure 7 shows how to position the ring. Ring selection guide diagrams: rings for 35 and 60 mm dish -Figure 8 and Figure 9, respectively.

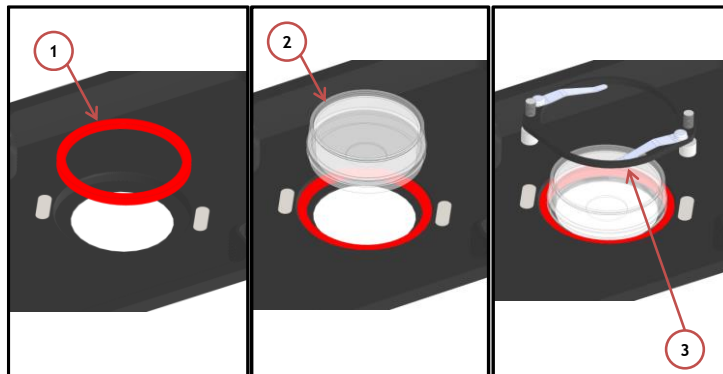


Figure 7. 1) Insertion of the ring, 2) insertion of the 35 mm dish, 3) insertion of the magnetic lock.

**NOTE:** Spacing rings are included with sample holder.



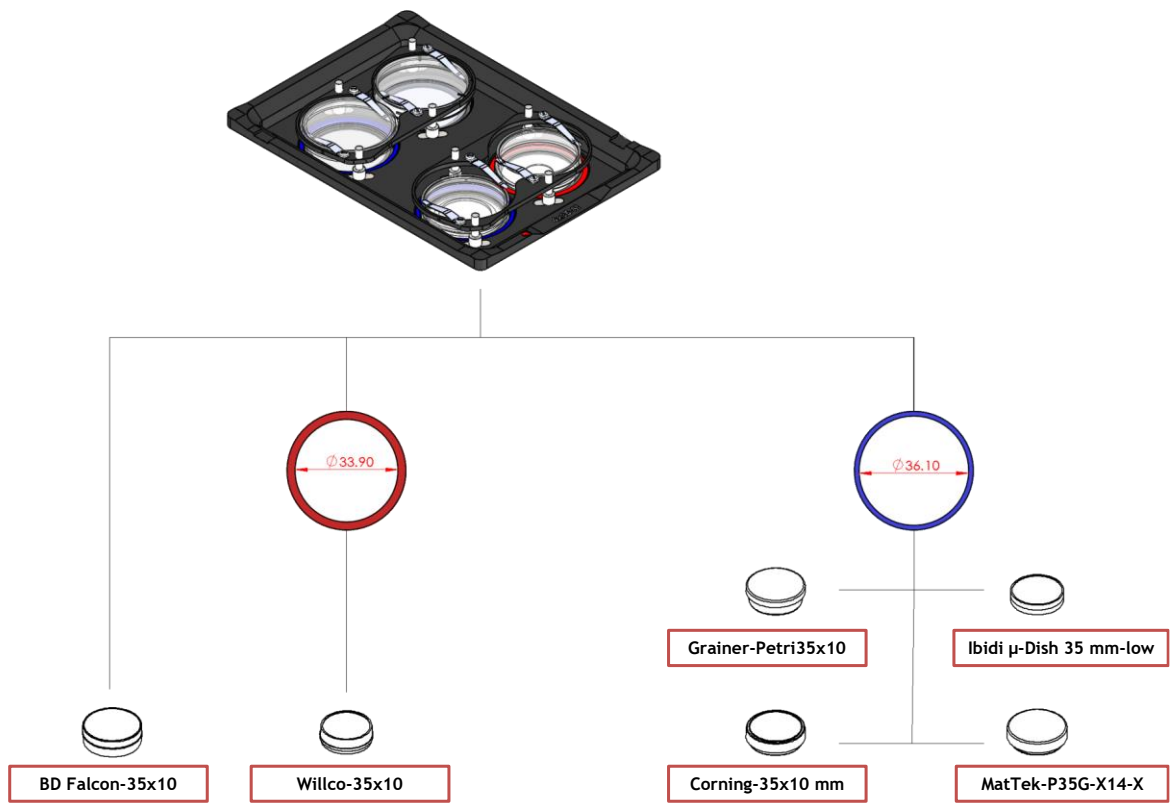


Figure 8. Ring selection scheme for 35 mm dish.

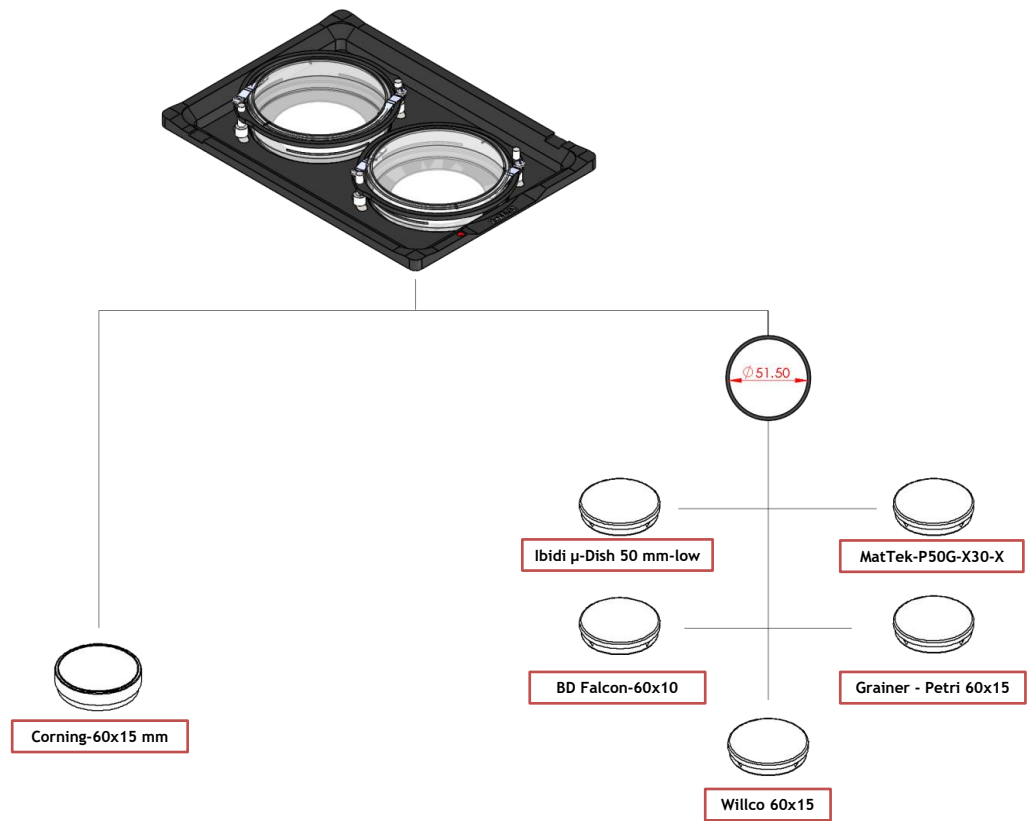


Figure 9. Ring selection scheme for 60 mm dish.

## 6. Working with 1x3'' and 1x2'' chamber slides - magnetic locks

Magnetic locks prevent movement of 1''x 3'' and 1''x 2'' chamber slides inside of the sample holder.

**NOTE:** Magnetic locks are included with sample holder.

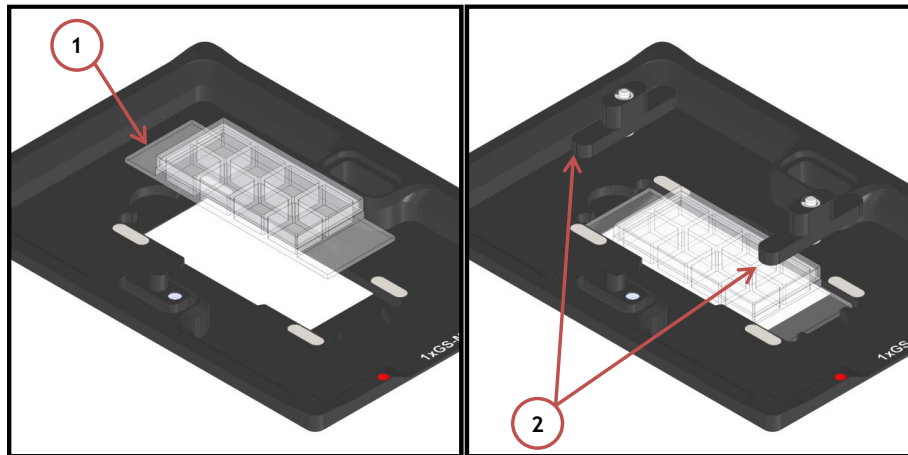


Figure 10. Magnetic lock for 1'' x 3'' chamber slide.

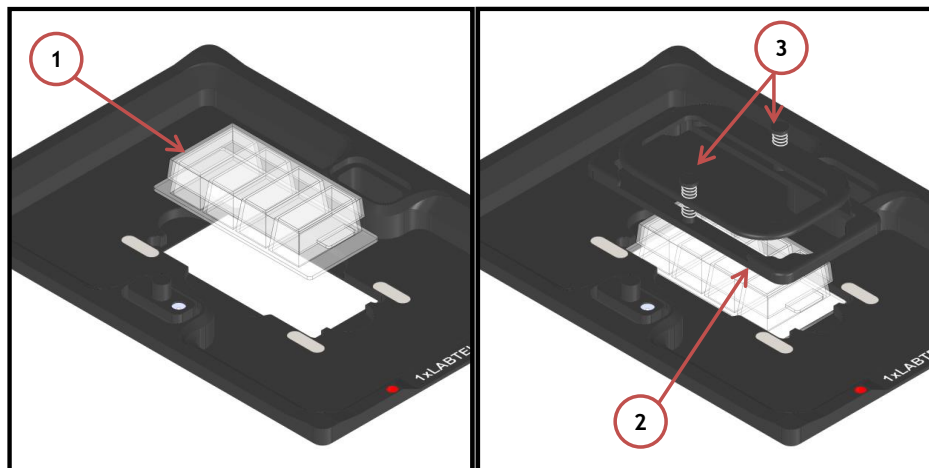


Figure 11. Magnetic lock for 1'' x 2'' chamber slide. To lock the slide, push simultaneously the buttons indicated with (3).

## 7. Working with MW Plates - Magnetic locks and Chamber riser

Magnetic locks hold MW plates in place into sample holder illustrated in Figure 12

**NOTE:** Magnetic locks must be ordered separately (NOT INCLUDED). Product codes: MW-LOCK 22.5 and MW-LOCK 16.5.

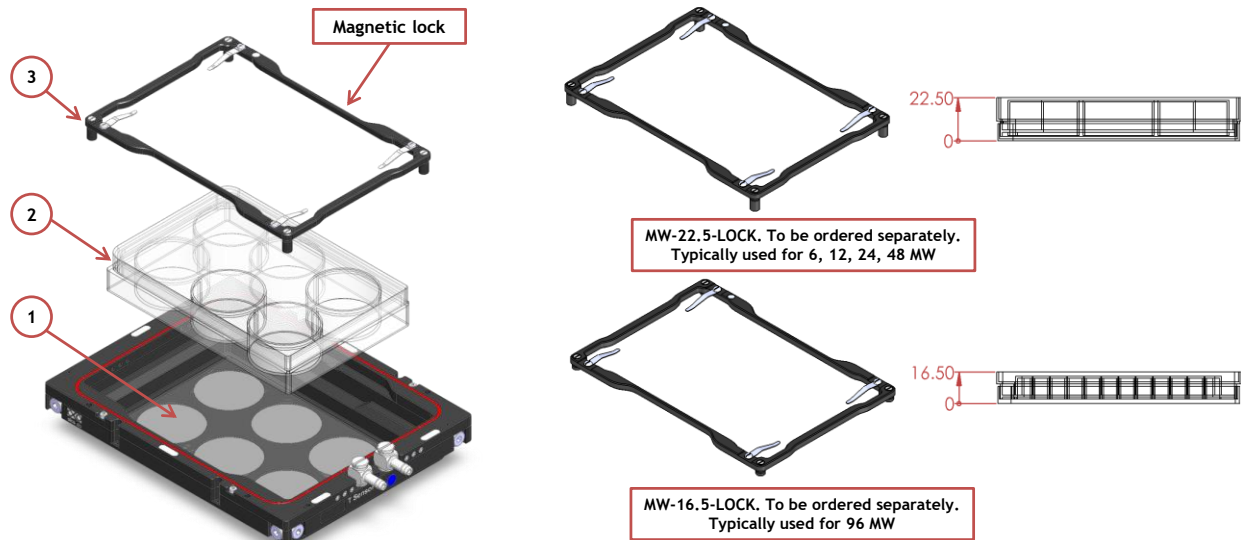


Figure 12. Magnetic locks for MW plates. To be ordered separately.

Chamber Riser increases chamber's height and is REQUIRED with 6, 12, 24, 48 MW plates, regardless of the Lid employed.

Figure 13 shows how to mount and screw the chamber riser. Screws location is indicated by letter A.

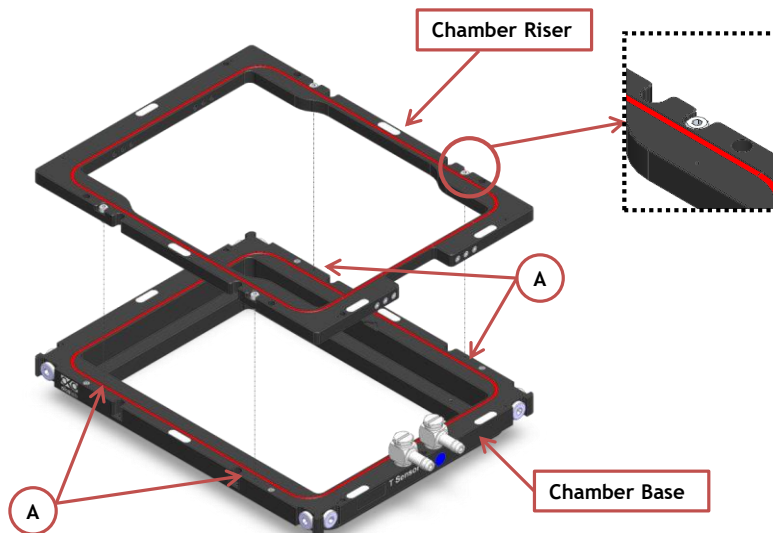


Figure 13. Riser Assembly.

## 8. Connectors description

1. **Gas Input.** A single silicon tubing carries output gas from the Okolab Bubbler Column to the H101-NIKON-TI-S-ER. Silicon tubing connects to a gas input - brass opening - located on a corner of the H101-NIKON-TI-S-ER. See Figure 14 Point 1. Connect by gently pushing silicon tubing onto brass opening.
2. **Water Input and Output.** Two silicon tubing carry output and input water from the thermostatic bath to the H101-NIKON-TI-S-ER. See Figure 14 Points 2. Connect by gently pushing silicon tubing onto steel opening. Match colors on chamber steel openings with ones on the thermostatic bath.
3. **Water Input and Output.** A single silicon tubing carries output water from the lid water jacket to the base one. See Figure 14 Points 3. The silicon tubing connects the base and lid as shown in Figure 15.

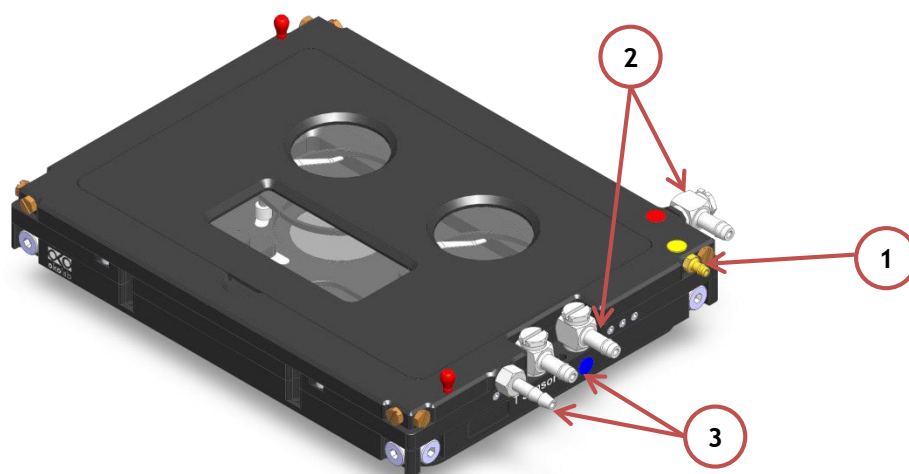


Figure 14. Connectors.



Figure 15. Communication tubing between the base and chamber lid

## 9. Working with Perfusion

The Chamber Riser included with H101-NIKON-TI-S-ER features 12 perfusion holes for the insertion of perfusion tubing up to 2.5 mm in outer diameter. Small screws plug the perfusion holes when not in use. (Grub screws M3x6). Remove small screws as necessary before introducing perfusion tubing.

Figure 16 shows location of perfusion holes.

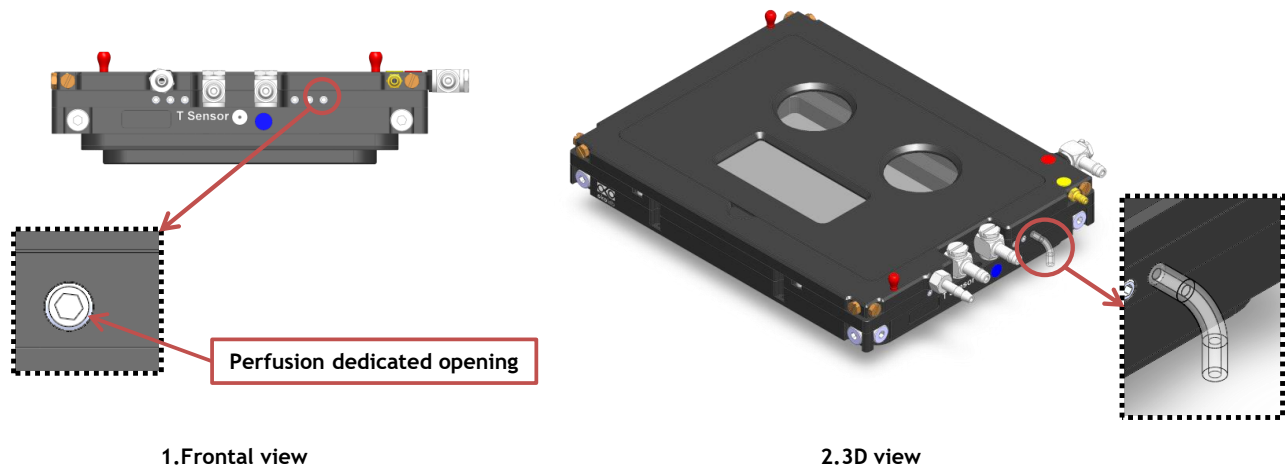


Figure 16. Perfusion

## 10. Connection of the Chamber with adapter

Follow the steps shown in the images of Figure 17 and listed below in order to correctly install the chamber onto XY stage:

1. See Figure 17 Images 1 and 2 for placing the captive screws in the proper housings
2. Place the chamber on the adapter as shown in Figure 17 Image 3
3. Use a 1.5mm metric Allen Wrench to tighten the four captive screws in the proper housings (A in Figure 17Image 4)
4. Figure 17 Image 5 shows the chamber fixed on the adapter.

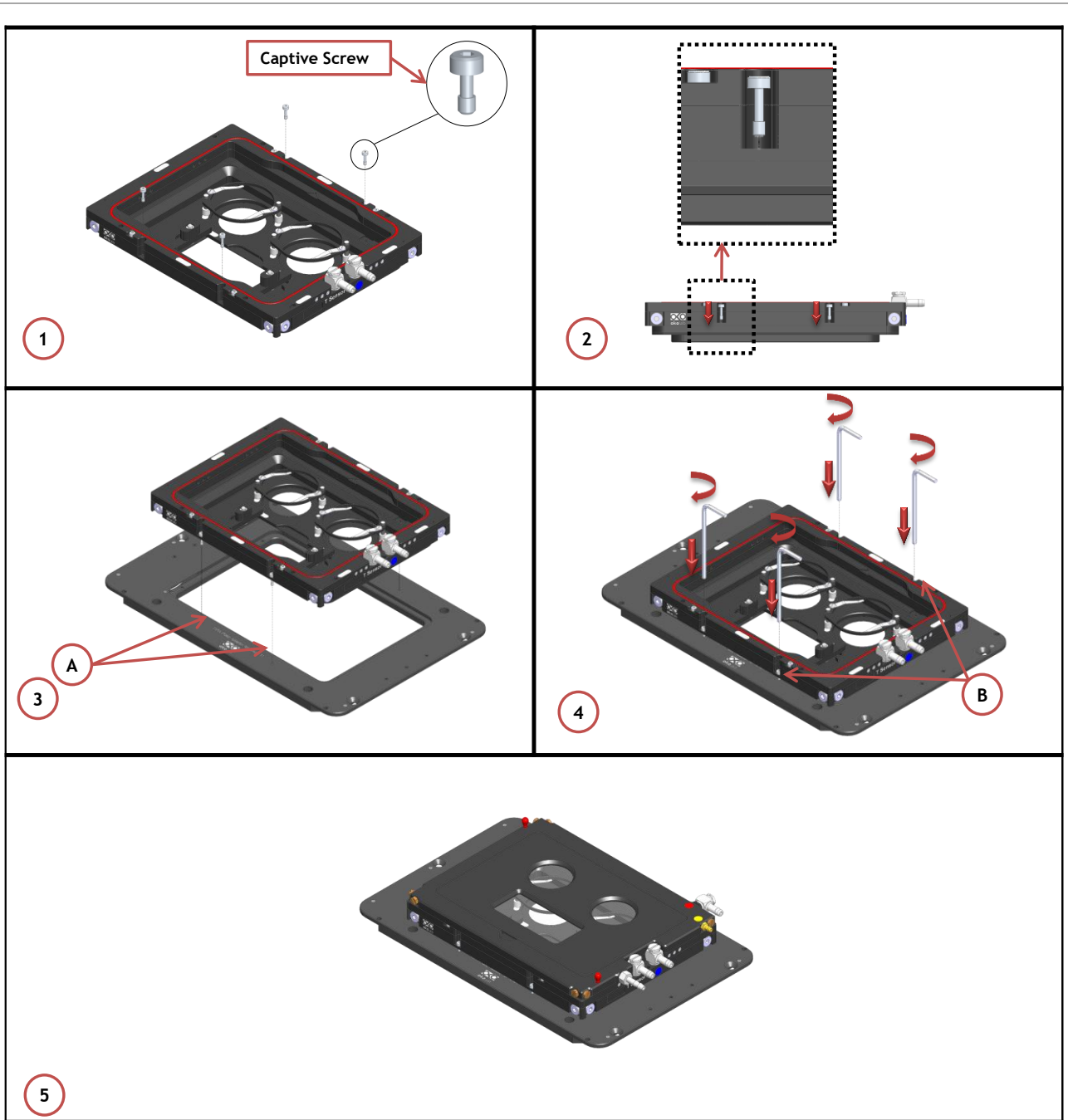


Figure 17. How to assemble the chamber to the adapter.

## 11. Connecting the Chamber with XY stage

Once you have assembled the chamber with adapter you can place it on the XY stage, following the steps shown in Figure 18.

1. Place the adapter on the stage (See Figure 18 Image 1).
2. Use the Grub screws to align correctly the adapter on the stage. Grub screws housings are indicated with letter A in Figure 18 Image 2.
3. Follow the arrows shown in Figure 18 Image 3 for placing flat socket head cap screws; use the provided Allen wrench to tighten the flat socket head cap screws and fastening the adapter on the stage. Screws housings are indicated with letter B in Image 4 of Figure 18.

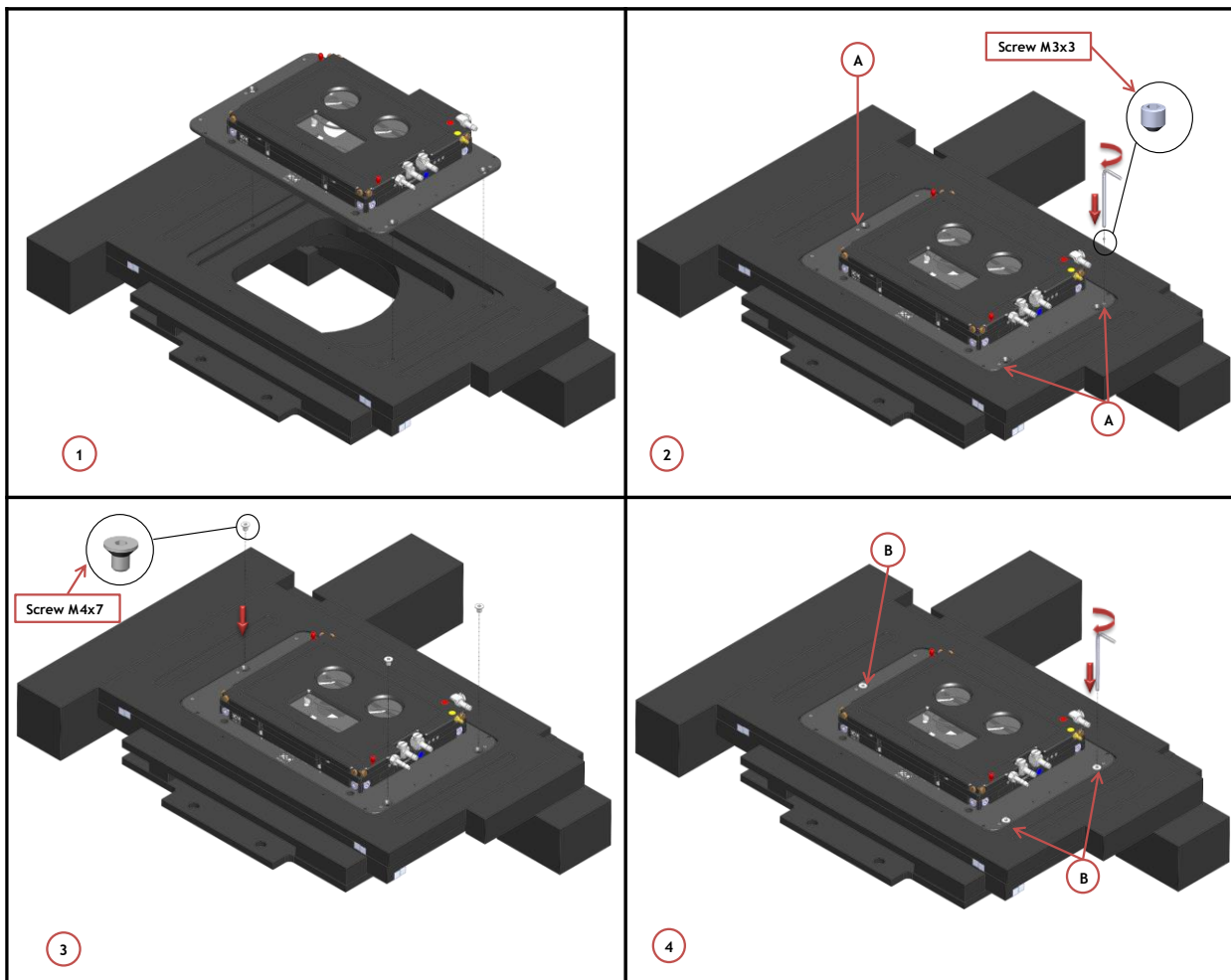


Figure 18. Connecting the Chamber with XY Stage