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1 Chamber Compatibility

H301-KEYENCE-BZX is a heated top stage chamber designed for Keyence BZX systems with XY stage having 160x110mm opening. It can be configured with both BOLD LINE and UNO controllers

2 Components and Dimensions

H301-KEYENCE-BZX includes the following components:

- **Lid** with embedded temperature sensors, to place on the chamber body (No screws or tools are necessary).
- Riser.** It is a removable frame increasing the height of the chamber from 22,65 to 28,65 mm, often required when using multi-well (MW) plates.
- **Sample Holder.**
 - **Chamber Base.**

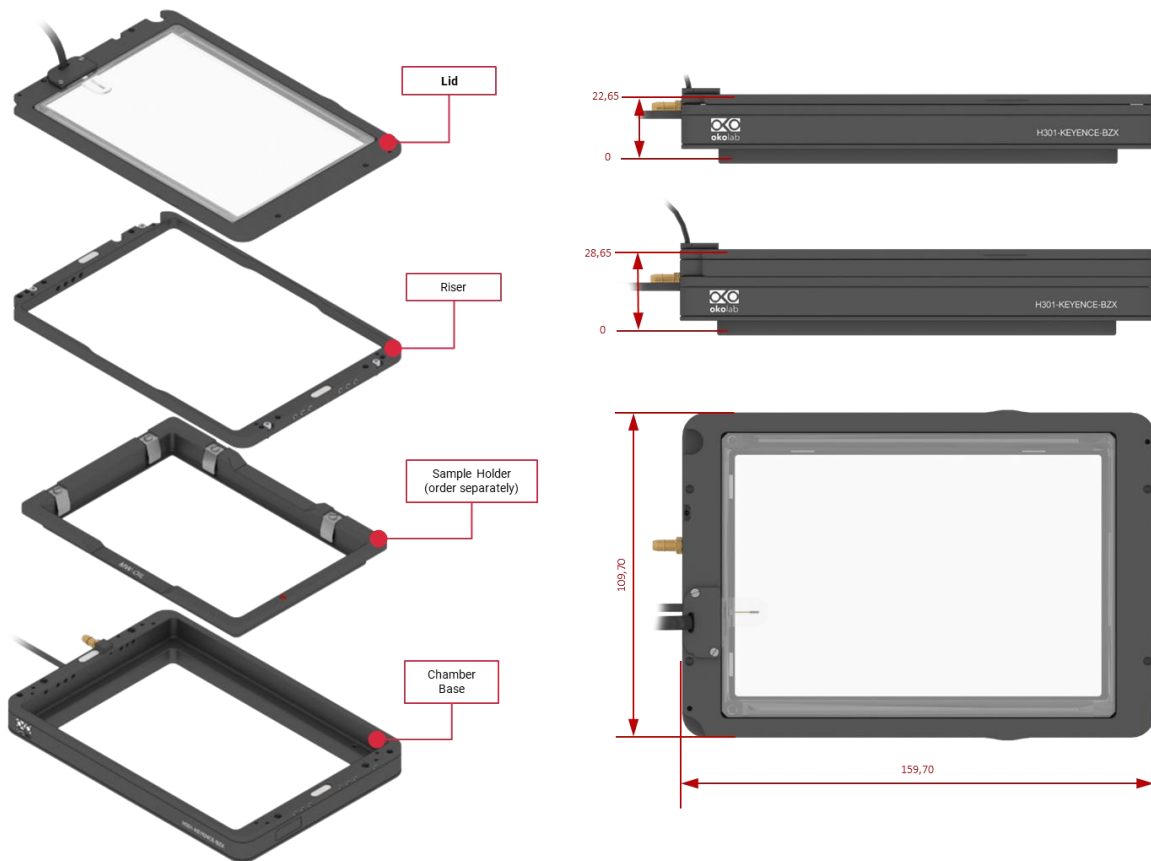


Figure 1. H301-KEYENCE-BZX – Components and Dimensions.

1.1 Available Sample Holder

The following sample holders are available.

Note ► Please contact info@oko-lab.com if you cannot find the sample holder you are looking for. We are constantly adding new inserts to the list.

1x35-M	#1 35mm Petri-dish
1xGS-M	#1 1x3in. chamber slide
1xLABTEK-M	#1 Lab-Tek 1in.x2in. chambered cover glass
1xLABTEK-II-M	#1 Lab-Tek II 1in.x2in. chambered cover glass
1x60-M	#1 60mm Petri-dish
1xT25-M	#1 Nunc and Greiner T25 flask
2x35-M	#2 35mm Petri-dish
2xGS-M	#2 1x3in. chamber slides
2xLABTEK-M	#2 Lab-Tek 1in.x2in. chambered cover glass
2xLABTEK-II-M	#2 Lab-Tek II 1in.x2in. chambered cover glass
2x60-M	#2 60mm Petri-dish
4x35-M	#4 35mm Petri-dish
GS35-M	#1 1x3in. chamber slide and #2 35mm Petri-dish
LABTEK-35-M	#1 Lab-Tek 1in.x2in. chambered cover glass and #2 35mm Petri-dish
LABTEK-II-35-M	#1 Lab-Tek II 1in.x2in. chambered cover glass and #2 35mm Petri-dish
LABTEK-60-M	#1 Lab-Tek 1in.x2in. chambered cover glass and #1 60mm Petri-dish
LABTEK-II-60-M	#1 Lab-Tek II 1in.x2in. chambered cover glass and #1 60mm Petri-dish

GS60-M	#1 1x3in. chamber slide and #1 60mm Petri-dish
6035-M	#1 60mm Petri-dish and #1 35mm Petri-dish
6MW	6-well plates
12MW	12-well plates
24MW	24-well plates
24MW-NUNC	24-well NUNC/GREINER plates
48MW	48-well plates
96MW	Holder to image 96-well plates with LD objectives.
MW-OIL	Holder to image 6/12/24/48/96-well plates with immersion objectives.



Figure 2. Available Sample Holders.

3 Installation

1.2 Installation of the Chamber into the XY Stage

H301-KEYENCE-BZX fits into the XY stage of the Keyence BZX systems in the same way as Keyence stage holders.



Figure 3. Connection of the Chamber with XY Stage

1.3 Insertion of the Sample Holder into Chamber Base

Sample holders fit into the chamber base and are held in place by magnets embedded within both the chamber and the 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 4.



Figure 4. Introduction of the Sample Holder inside the Chamber Base.

1.4 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 5 illustrates the available magnetic locks for 35 and 60 mm dishes. Threaded magnetic posts allow adjusting the holder's height.

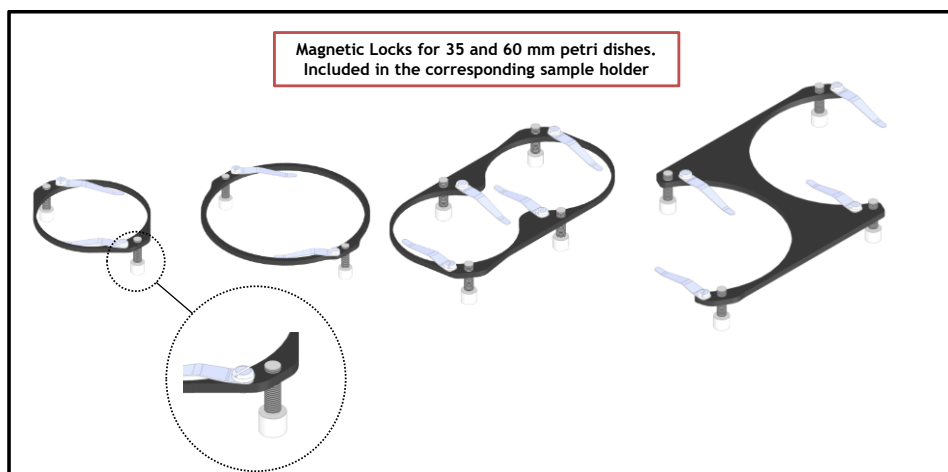


Figure 5. Magnetic Locks for 35 and 60mm dish.

Note ► *Magnetic locks are included with sample holders.*

Spacing rings accounting for variability in dish diameter from one manufacturer to another are also included. Figure 6 shows how to position the ring. Ring selection guide diagrams: rings for 35 and 60 mm dish -Figure 7 and Figure 8, respectively.

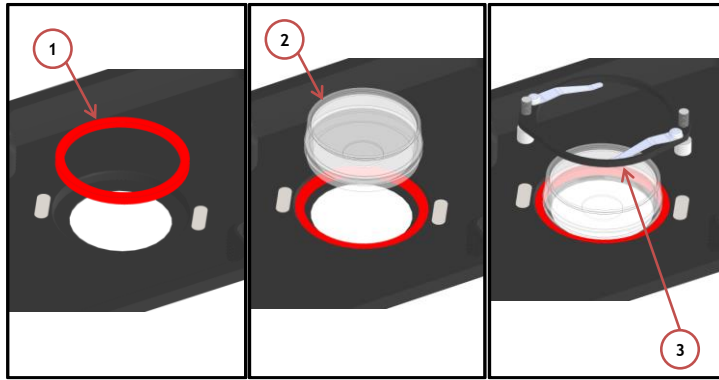


Figure 6.1) Insertion of the ring, 2) insertion of the 35 mm dish, 3) insertion of the magnetic lock.

Note ► Spacing rings are included with sample holders.

Note ► Spacing rings do not block the petri inside its accommodation, but they are designed to center the petri with respect to the observation circular window.

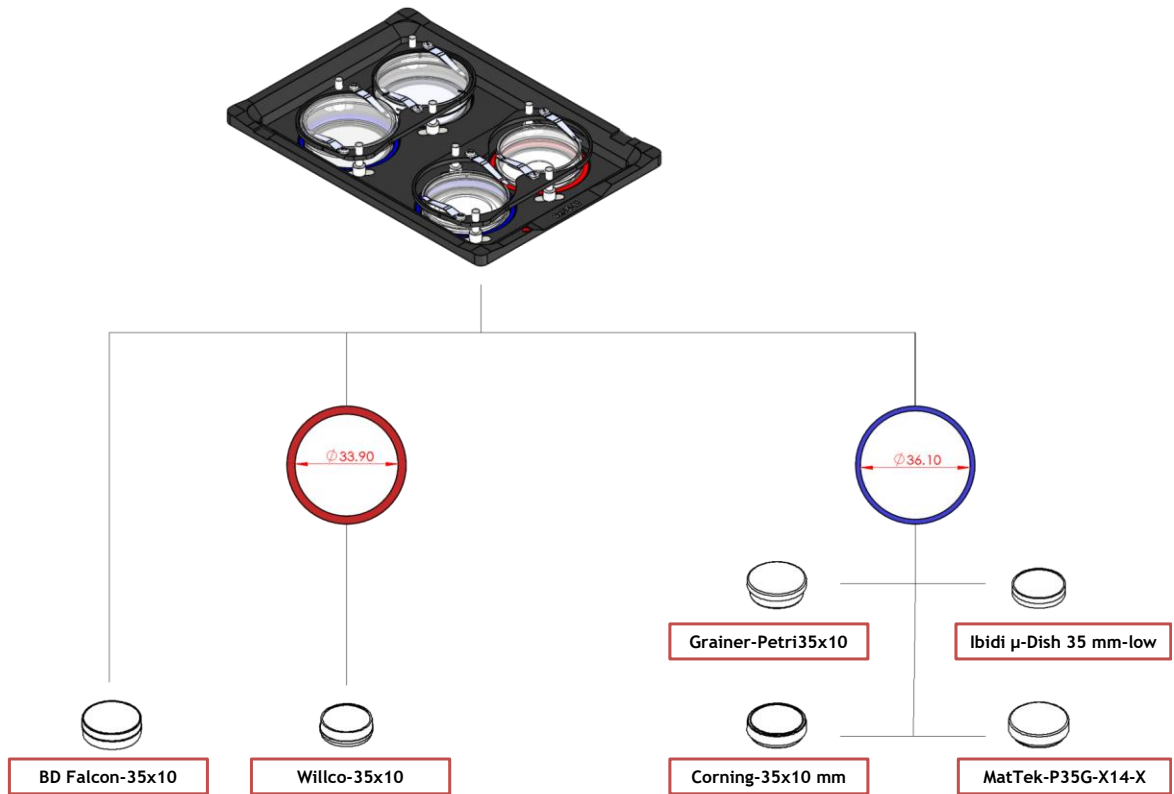


Figure 7. Ring selection scheme for 35 mm dish.

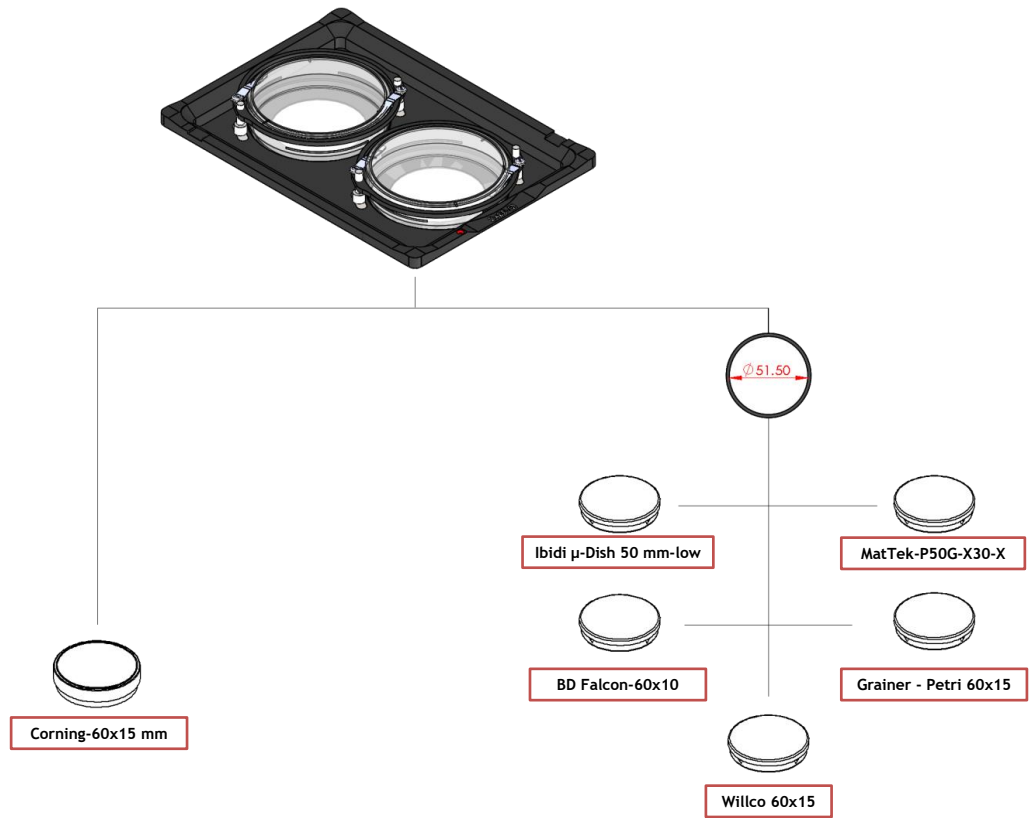


Figure 8. Ring selection scheme for 60 mm dish.

1.5 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 holders.*

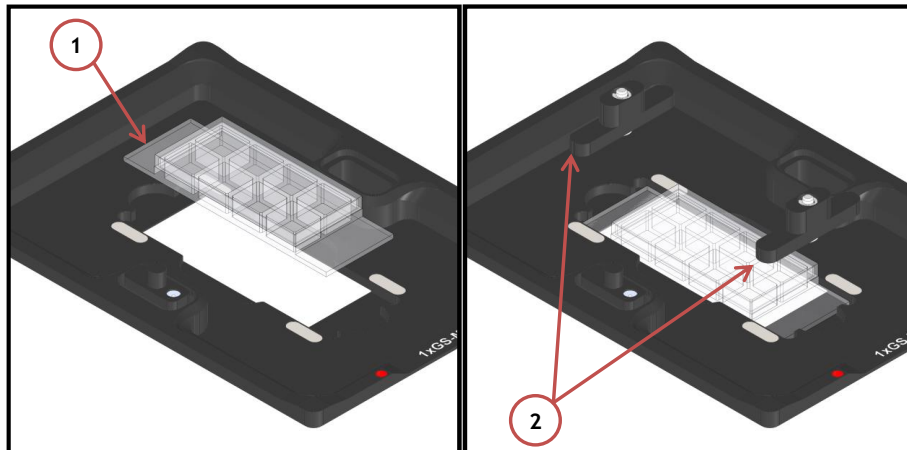


Figure 9. Magnetic lock for 1" x 3" chamber slide.

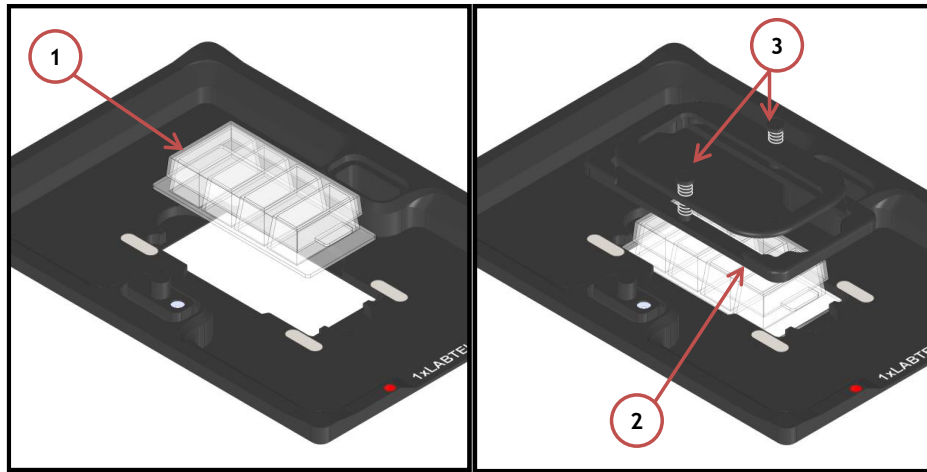


Figure 10. Magnetic lock for 1" x 2" chamber slide. To lock the slide, push simultaneously the buttons indicated with (3).

1.6 Working with MW Plates - Magnetic locks and Chamber riser

Magnetic locks hold MW plates in place into sample holder illustrated in Figure 11

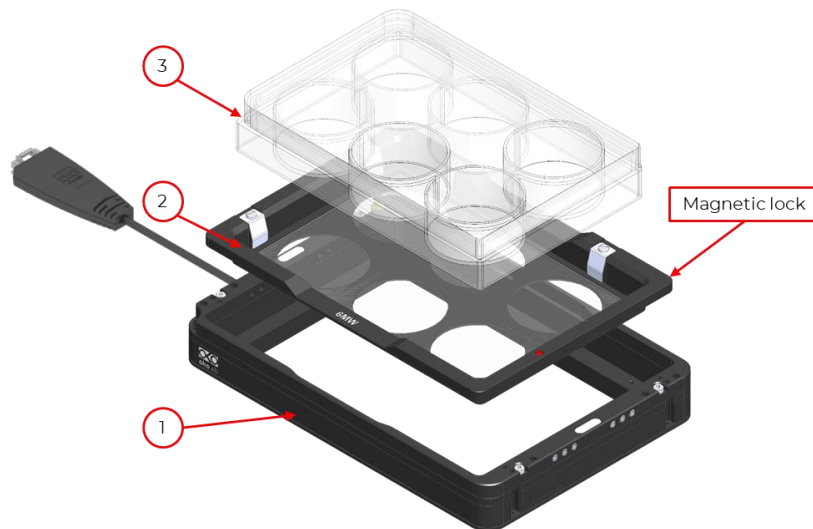


Figure 11. Magnetic locks for MW plates. Ships with 6, 12, 24, 48 MW plates.

The Chamber Riser increases the chamber's height and it is required to accommodate 6, 12, 24, 48 MW plates.

Figure 12 shows how to mount and screw the chamber riser. Screws location is indicated by letter A.

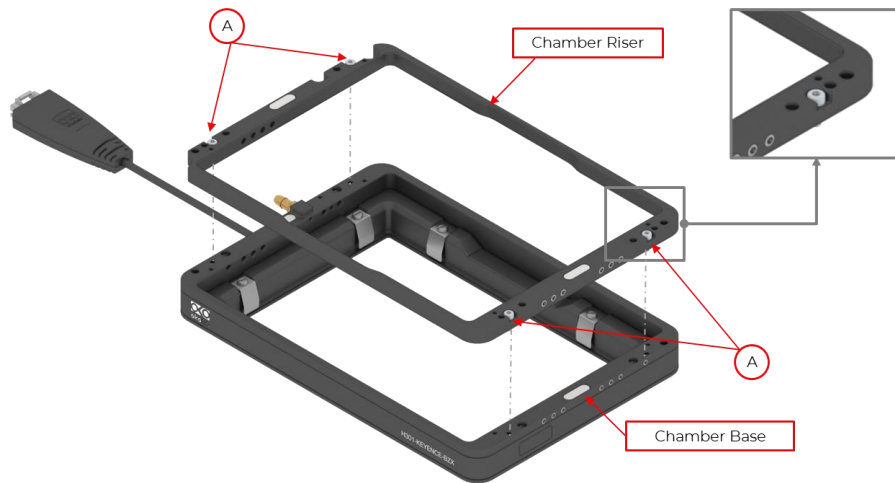


Figure 12. Riser Assembly.

4 Gas Connection

A single silicon tubing carries output gas from the Okolab Gas Controller to the H301-KEYENCE-BZX. Silicon tubing connects to a gas input - brass opening - located on a side of the H301-KEYENCE-BZX. See Figure 13.



Figure 13. Gas Input Port.

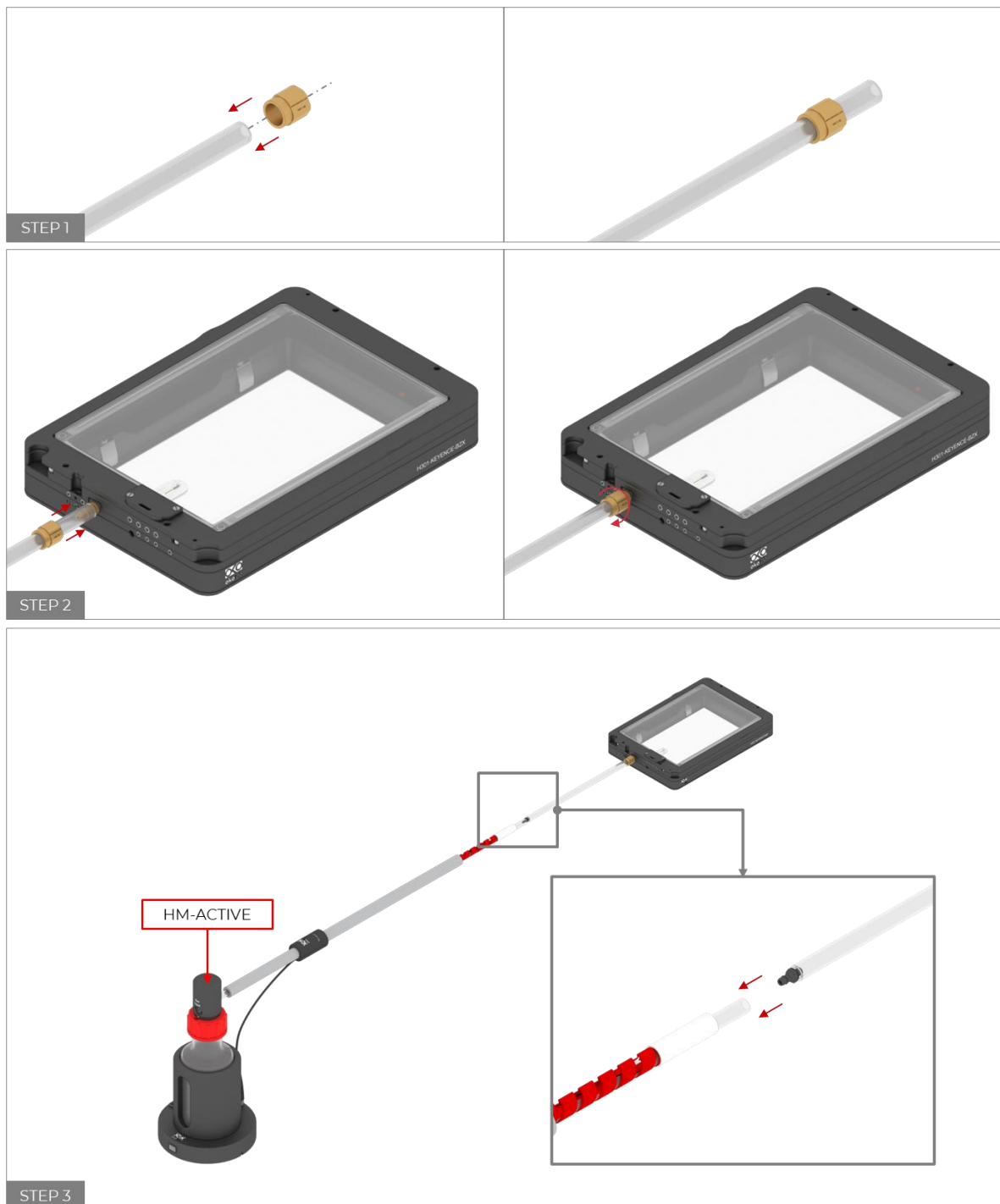


Figure 14. Output Gas Connection to H301-KEYENCE-BZX.

5 Working with perfusion

The H301-KEYENCE-BZX features 23 perfusion holes (10 in the chamber riser, 13 in the chamber base) on the sides for the insertion of perfusion tubing up to 2.5 mm in outer diameter. Small screws plug the perfusion holes when not in use (screws plug M3x0.5 THD). Remove small screws plug as necessary before introducing perfusion tubing.

Figure 15 shows location of perfusion holes.

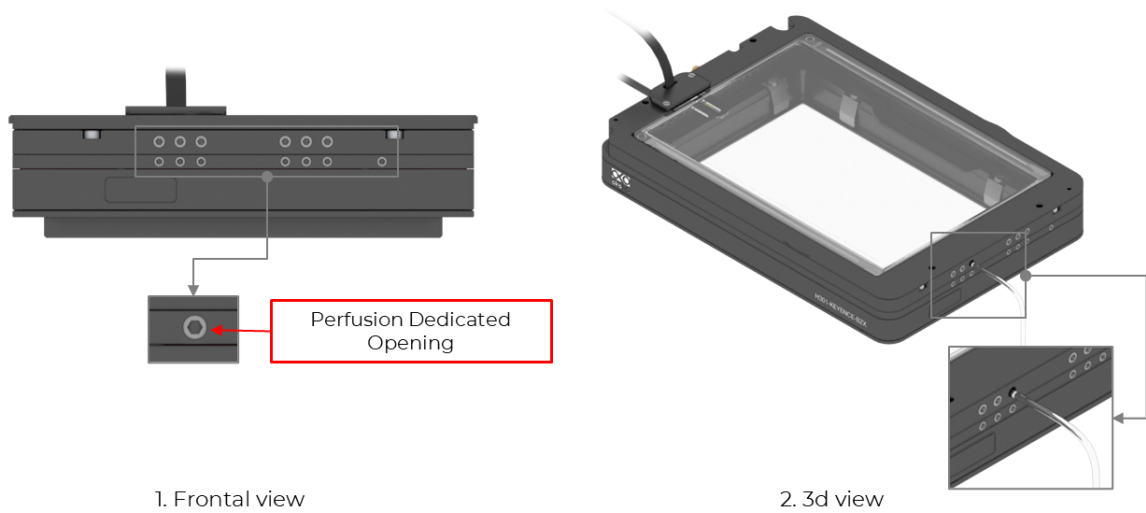


Figure 15. Perfusion.

6 Insertion of the Sample Feedback Temperature Sensor

Insert the Sample Feedback Temperature Sensor through the dedicated opening located in the H301-KEYENCE-BZX (see Figure 16).

To read the temperature of the culture medium and realize a self-calibration of the chamber, fix the Temperature Sensor tip with adhesive tape on the bottom of the dish inside the H301-KEYENCE-BZX. For more information about the self-calibration, please refer to the User Manual of the Okolab Controller in use.

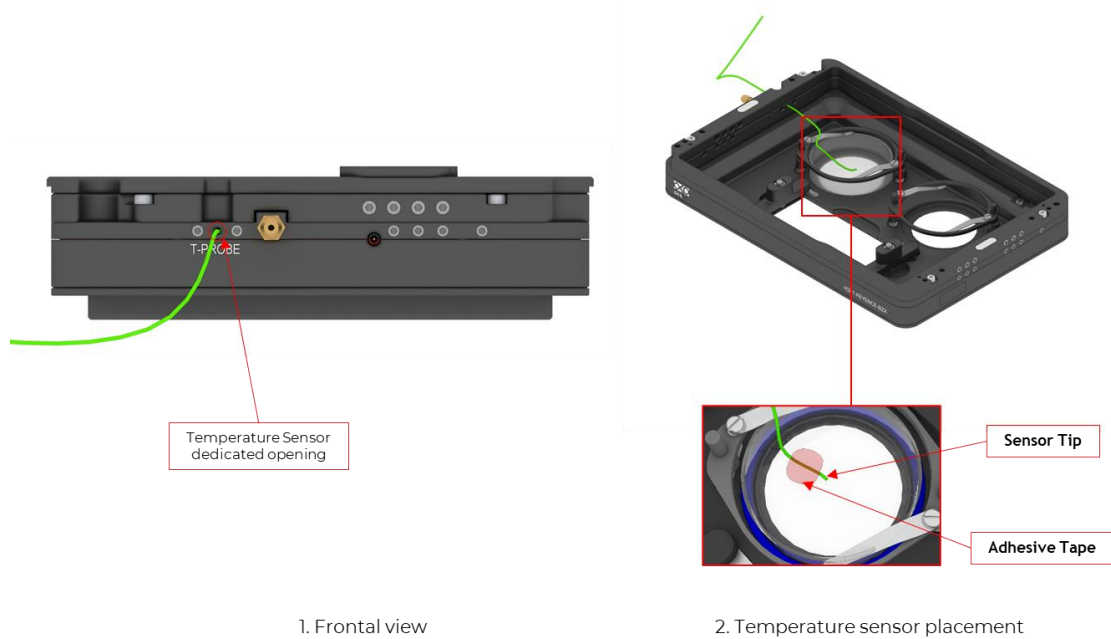


Figure 16. Insertion of the temperature sensor inside the chamber.

7 Cleaning

- Turn the system off and pull the mains plug out the socket
- Wait the chamber cools down.
- To clean the body and the glass lid of the chamber, wipe with a soft micro-fiber cloth. For stubborn smudges, you can damp the soft micro-fiber cloth with ethyl alcohol (product code UN1170). Do not put any liquid directly on the chamber. While cleaning the glass lid, do not apply strong force to the surface of the glass lid because it can be damaged.

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9 Document Revision Table

Revision Number	Additions or changes	Date
01	First edited	April 2022