

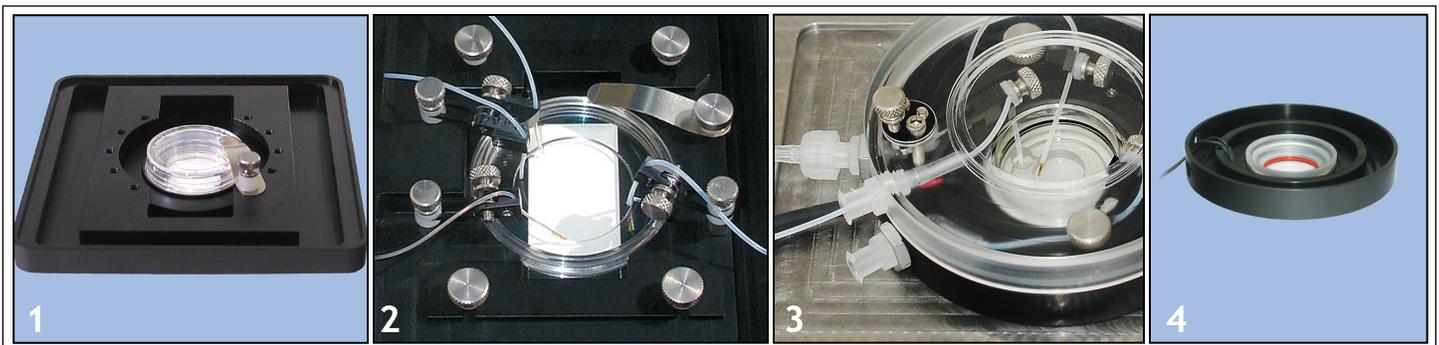
Closed Controlled Environment Setup for petri dishes and coverslip chambers



The closed controlled environment setup can provide conditions around your sample similar to those obtained inside incubators. At the same time it allows you to position the sample on microscope stages to perform imaging while keeping the samples in controlled environment. The incubators can be used with coverslip holders the same way as with petri dishes and coverglasses.

Incubator for motorized stages TC-MI with chambered coverglasses inside.

Catalog #	Features:
TC-MIS	Incubator for petri dishes and coverglasses.
TC-MI	Incubator for motorized stages.
TC-CIC	Light-weight incubator for 35mm petri dishes and coverslip holders



1. Place the dish inside the base. Use petri dish adapters to fit different brand dishes. 50mm reducing adapter can be used with TC-MI and TC-MIS.

If water evaporation and condensation is an issue, a heated cover can be used. If you are doing short-term imaging experiments, you do not need to fill the incubator with water. If you are concerned about evaporation of media, however, you might fill the reservoir (groove on the side of the incubator) with distilled water to keep certain level of moisture in the incubator and to prevent evaporation of your media. The water can be refilled through one of the ports on the side of the incubator.



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2. The setup also allows you to exchange media inside the dish or chamber. To make a perfusion setup, you need to configure your system to provide solution flow/exchange using PS15 perfusion systems or controlled flow systems CFPS-1U, CFPS-2. The solution outflow can be provided by using additional CFPS-1U, or one of the channels in CFPS-2. Using provided tubing holders, adjust inflow tubing so that it goes inside one of the compartments in your dish or chamber. A luer-lock connectors can be used to attach the inflow solution to the incubator. After opening the port, feed thin Teflon tubing through the port inside the incubator. Another luer-lock tubing fitting should be attached to the outflow port. Similarly, using another holder, adjust the suction tubing so that the outflow/suction tubing goes inside another compartment in your dish or chamber. Before closing the incubator, make sure the inflow and outflow tubing are positioned inside the dish or chamber.

The tubing holders are adjustable and allow you to position the tubing at any angle (tilt), and can be rotated to bring the tubing closer to the center of the dish/chamber. First, rotate the holder so that tubing/probe is positioned above the right compartment inside the dish/chamber (you might use provided glass bottom dish insert with different inflow and outflow compartments to facilitate perfusion of the dish). Then, adjust tilt & length so that the tubing goes to the right depth. Note: after the experiment, the sequence is opposite. First, pull out the tubing from the dish/chamber, and then, rotate the holder to clear the dish/chamber.

Note: if perfusion is used, the media can be saturated with gases (CO₂/O₂, for example) before it enters the dish; in this case, connecting the setup to a source of the gas mixture might be unnecessary, unless perfusion can be stopped during the experiment.

3. You can use an External Temperature Probe inside the dish similar to perfusion setups below. Since solution perfusion will effectively eliminate temperature gradient inside the dish, you can also attach the temperature probe to the heated base. This will make the system more stable, but you might need to offset the reference temperature, if the actual temperature in the dish is different from the required temperature. Or simply use FEEDBACK from a sensor inside the base - STAGE/BLOCK. To use incorporated inside the base temperature sensor, switch the controller to display STAGE temperature, and read STAGE/BLOCK temperature feedback. Refer to setting reference temperature procedure in the manual.

The source of CO₂ mixture connects to one of the ports in the cover or in the base and should provide a very slow continuous stream – enough to replace the residual gases inside the incubator (the incubator is not sealed).



4. The incubators can be used with coverslip holders the same way as with petri dishes and coverglasses.

5. The heated cover of TC-MI and TC-MIS incubators can be connected in parallel with heating base. Use the cable-adapter to connect both the cover and the base to the same channel of a temperature controller. Usually, the the thinner outlet connects to the cover, and the wider - with four wires - connects to the base to provide feedback from the sensor inside the base.