

BOLD LINE 3

The first and **ONLY** microscope incubator with **COMPLETE** sample-level feedback



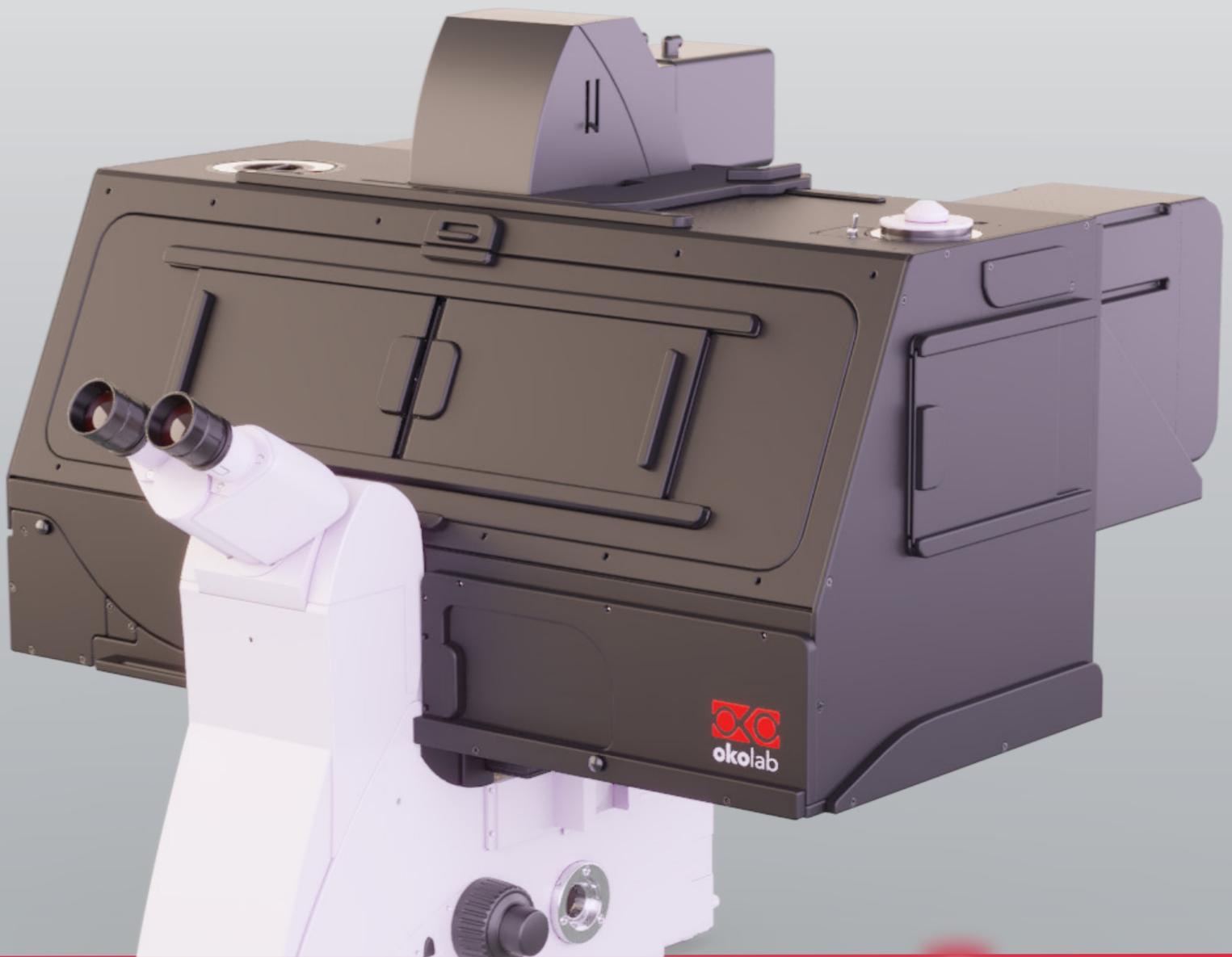
CO₂



Humidity



Temperature



BL3 CAGE INCUBATOR

The ultimate incubator for the most demanding applications, with a unique Error-Proof Workflow

the **MICROSCOPE
INCUBATION
EXPERTS**

BOLD LINE 3

CAGE INCUBATOR

Large volume incubator with local CO₂(O₂) and humidity micro-environment chamber.

The Bold Line 3 Cage Incubator controls temperature throughout the entire enclosure, by receiving feedback from the on-stage chamber.

Gas composition and humidity are supplied and controlled inside the stage top gas chamber.

The BL3 is the first microscope incubation solution to provide closed-loop feedback control of temperature, humidity, and gas composition at the sample level, ensuring higher experimental reliability, lower gas consumption and error-proof workflows.



AVAILABLE OPTIONS:

- **Laser Safe** with automated laser interlock on all doors + black anodized aluminum sheets inside cage surface.
- **Custom Designs** provide a perfect fit to surround any type of unique imaging system.

GAS MICRO-ENVIRONMENT CHAMBER

- Models available for all XY stages/piezos on the market.
- **Embedded high-precision temperature sensor ensures sample-feedback accuracy without manual probe placement.**
- Can accommodate multi-well plates without additional inserts.
- Universal sample holders can be combined with a simple adapter for use in the XY stage/piezo without incubation.
- Perfusion holes for inlet or outlet of microfluidic tubes.
- Specialized microfluidics riser is optionally available.
- Removable chamber riser adjusts the chamber's height.

ENCLOSURE

The black enclosure creates a large volume around the microscope in which temperature can be controlled by recirculating warm air. It encloses the microscope stage, nosepiece and objectives. All electronics including cameras, confocal scan head etc. are left outside of the enclosure avoiding exposure to heat.

- Built-In **(RED and WHITE)** LED light with dimmer and on/off foot pedal.
- **Efficient, ductless dual heater design:** gets to temperature 50% faster while also reducing system footprint, saving time and space.
- Openable folding front panel with stay-open hinges.
- Double sliding doors (dark and transparent) allow the sample to be seen without affecting its temperature, as well as access to it by opening the transparent layer.
- Magnetic access ports for objectives and peripherals, plus a folding front panel or sliding windows for easy access to any part of the microscope setup.
- Sliding parts on the top panel allow tilting the illumination pillar.





TEMPERATURE CONTROLLER

- Temperature range: from 3°C above ambient to 45°C.
- ±0.1 °C thermal uniformity and stability within the sample across all culture vessels.
- Uniform temperature throughout the entire enclosure, **ideal for perfusion and microfluidics applications.**
- **Positive-pressure thermal protection prevents cold air ingress when opened**, enabling extended access to the microscope or sample while maintaining stable temperature.
- Low energy consumption, thanks to warm air recirculation.
- Proven **vibration-free heating technology**, also ideal for high-end and high-resolution imaging.

GAS MIXERS - CO2 OR CO2/O2

Digital gas mixers connect to the temperature unit and share the same touch screen interface.

- Use high quality, drift-free gas sensors.
- CO2 sensor: non-dispersive infrared (NDIR) two-wave-length detector.
- Oxygen sensor (Hypoxia model): optical oxygen sensor.
- Hyperoxia model uses drift-free mass flow controllers.
- Adjustable output flow rate.
- Programmable CO2/O2 cycles.
- Compatible with HM-ACTIVE and HM-VF.
- Air can be supplied via Okolab's convenient Air Pump (output flow range: 0-0.4 l/min), or using compressed air cylinder or house air (output flow range up to 1 l/min).

Available Gas Options	in-chamber sensor compatible	CO2		O2		Output Flowrate (l/min)	Expected Gas Sensor Lifetime
		Range, %	Accuracy, %	Range, %	Accuracy, %		
H203-T-H-CO2-ENCLOSURE	YES	0 - 20	0.1	-	-	0.05 - 1.0*	≥10 years
H203-T-H-CO2/O2 [0-21]-ENCLOSURE	YES	0 - 20	0.1	0 - 21	0.1	0.2 - 1.0*	≥10 years - CO2 ≥5 years - O2
H203-T-H-CO2/O2 [0-95]-ENCLOSURE	NO	0 - 20	0.2 at 5% CO2	0 - 95	0.2 at 5% O2	Depends on O2 set-point	MFC

*Max flowrate is 0.4 L/min if using the air pump. Min flowrate is 0.2 L/min if using the CO2-H-IN-CHAMBER-SENSOR



TOUCH SCREEN INTERFACE

- **One-touch control** of all environmental parameters from a single intuitive touchscreen panel, powered by intelligent software that automatically regulates the system.
- User friendly control of all parameters from a single intuitive touch screen panel.
- Real time monitoring and feedback for all the key environmental parameters.
- On board memory – download experimental metadata via USB.

VIBRATION-FREE HUMIDITY SYSTEM

- External humidity module – **NO water moat**. Keeps water safely away from your microscope.
- After a few days of use, easily refill the vessel without opening the enclosure and without perturbing the sample.
- A water trap is located between the humidifier and the micro-environmental chamber. This prevents water droplets from accidentally reaching the sample.
- Compatible with all Okolab gas mixers.





COMPLETE T/H/CO2 SAMPLE LEVEL FEEDBACK

The CO2-H-IN-CHAMBER-SENSOR (optional) increases experimental reliability, reduces gas consumption and makes the BL3 cage incubator error-proof.

Closed-loop feedback corrects deviations caused by changes in experimental conditions and alerts the user before the experiment starts if a setup error is detected. Monitoring continues throughout the entire experiment.

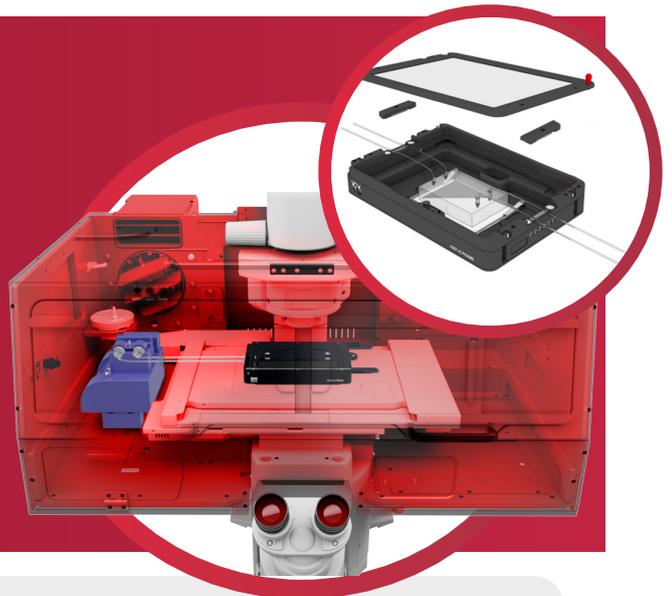
Typical errors detected: open lid, disconnected tubes, low flow, low humidity water level, unsecured sample slots.

SET IT. RUN IT. TRUST IT. No surprises the next morning.

THE IDEAL ENVIRONMENT FOR MICROFLUIDIC APPLICATIONS

Okolab's Cage Incubator is ideal for microfluidic and perfusion applications thanks to its uniform temperature throughout the entire enclosure, allowing perfusion pumps to be placed inside the cage and maintained at thermal equilibrium with the sample.

Add the optional MICROFLUIDIC-C-RISER to the on-stage gas chamber: thanks to its 19 × 3 mm lateral windows, closed by magnetic clamps, placing perfusion tubing becomes quick and hassle-free.



CONTINUED QUALITY

YOU CAN COUNT ON OKOLAB!

Built on 20+ years of incubation expertise and backed by an exclusive 3-year warranty.

oko-lab.com

