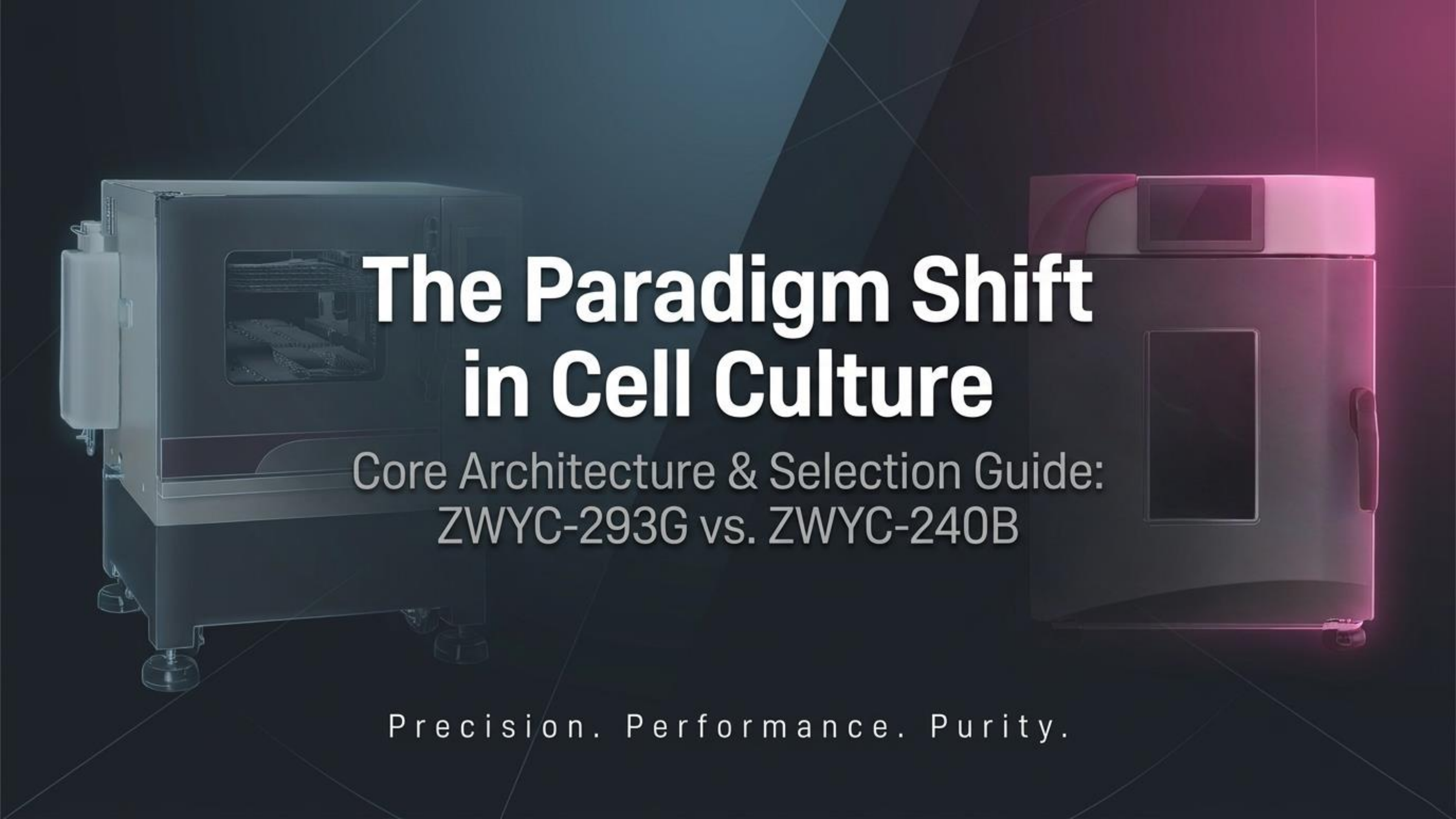




The Paradigm Shift in Cell Culture

Core Architecture & Selection Guide:
ZWYC-293G vs. ZWYC-240B

Precision. Performance. Purity.



ZWYC-293G: The Micro-Environment Master

Stepless Amplitude Flexibility

Active Humidity Control

Dynamic/Static Integration

Mature and reliable. Delivers irreplaceable flexibility for complex, variable experiments demanding strict micro-environment control.



ZWYC-240B: The Digital & Spatial Pioneer

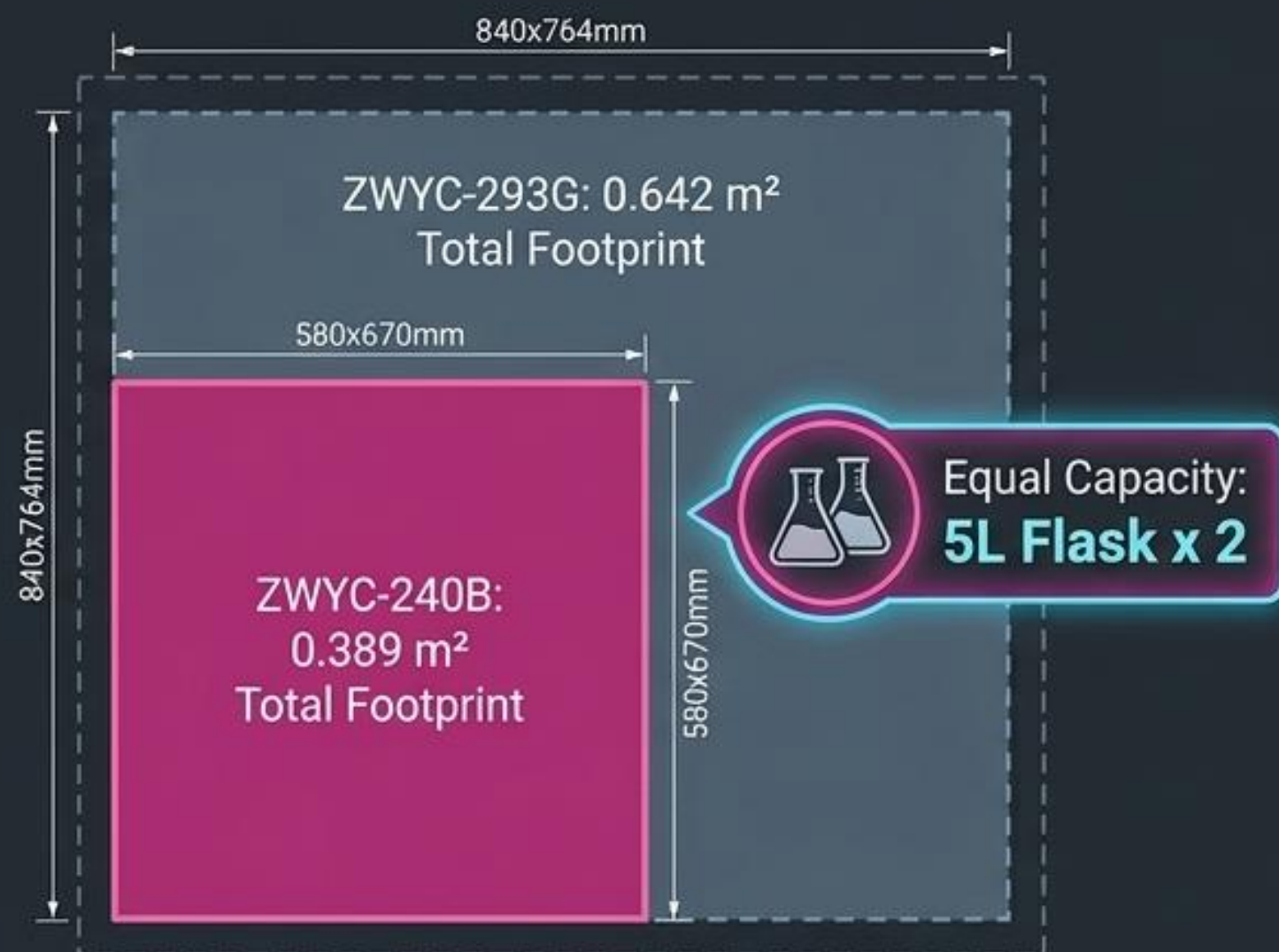
Extreme Space Utilization

Zero-Vibration Peltier

Digital Audit Compliance

Breaks traditional hardware constraints. Disruptive spatial geometry and semiconductor thermodynamics maximize output on every inch of bench space.

Spatial Geometry: Multiplying Benchtop Yield



31.2%
Tray Ratio
(0.200 m² shaking area)

42.9%
Tray Ratio
(0.167 m² shaking area)

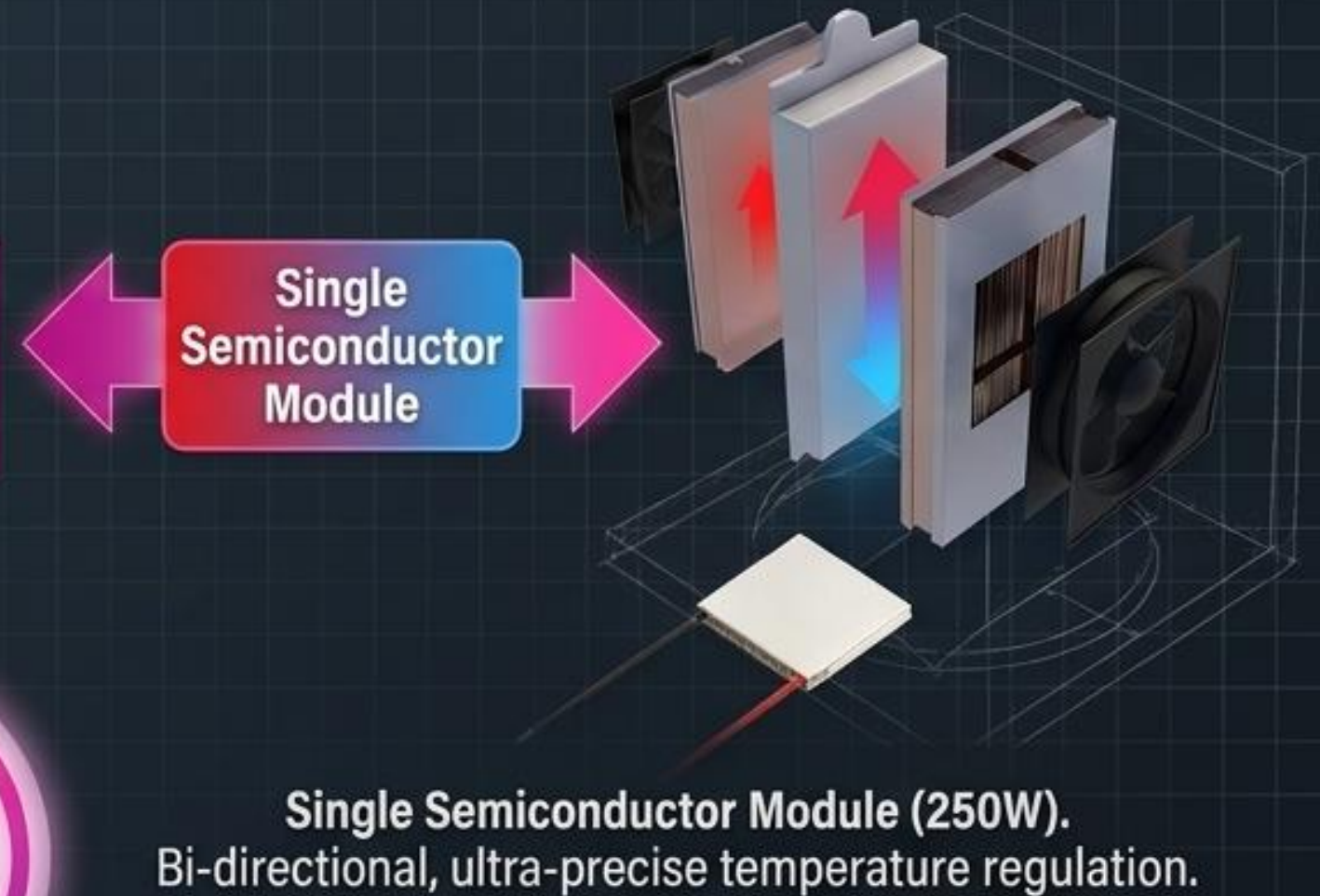
Core Insight: The 240B utilizes disruptive internal spatial geometry to yield the exact same maximum flask capacity (2 x 5L) while reclaiming massive amounts of vital laboratory real estate. Both units support double-stacking.

Thermodynamic Re-Engineering: The Heating/Cooling Core

ZWYC-293G - Traditional Architecture



ZWYC-240B - Peltier Architecture



**70%
Energy
Savings**

The Cell Benefit: Zero Vibration. Semiconductor technology eliminates mechanical compressor vibration at the source, providing an undisturbed, tranquil environment for highly sensitive cell lines.

Kinetic Evolution: Smoother, Purer Micro-Mixing

Traditional Architecture: **ZWYC-293G: Direct Beltless Drive**



- 30-300 rpm speed range.
- Quiet, vibration-free, single-direction rotation.
- Highly durable mechanics.



Modern Pioneer Architecture: **ZWYC-240B: Magnetic Drive + FOC Vector Control**



- 2-300 rpm ultra-wide speed range with pinpoint ± 1 rpm accuracy.
- Programmable Rotation: Supports Clockwise, Anti-Clockwise, and Alternating modes.

The Insight: Programmable 'Forward-Stop-Reverse' breaks fluid inertia and destroys stable vortices. This drastically increases oxygen transfer rates and nutrient distribution without increasing shear stress on sensitive cells.

Engineering Trade-offs: The Choices Behind the Extremes

ZWYC-293G: Absolute Flexibility



Amplitude

1-50mm Stepless Adjustable

Perfectly adapts to everything from deep-well microplates to giant 5L flasks.



Humidity

Active Direct Steam

Delivers rigorous, high-precision humidity control for highly demanding micro-environments.

ZWYC-240B: Extreme Focus



Amplitude

Fixed 25mm Eccentric Mechanism

Sacrifices adjustment flexibility to create an ultra-compact drive, making the 42.9% tray ratio possible.



Humidity

Passive Natural Evaporation

Bound by Peltier constraints, but paired with high-precision capacitive sensors to reliably maintain up to 80% RH (preventing dry-out in standard culture).

Time Autonomy: From 'Duration' to 'Clock' Mode

ZWYC-293G: Duration Mode

(1 Program, 10 Segments of up to 9999 mins).



Unattended automation.

Machine auto-starts based on real-world time while staff is home.

ZWYC-240B: Real-Time Clock Mode

(5 Programs, 100 Segments of up to 999 hrs).



Researchers arrive.

Samples have precisely reached the critical growth phase, perfectly aligning with downstream sampling SOPs. No waiting required.

Intelligent Protection: Guarding Asymmetric Sensitivities

Asymmetric Alarms - 240B

Asymmetric Gauge

+0.2°C
(Upper Limit)

-1.0°C
(Lower Limit)

-0.2°C

Independent Upper/Lower Alarms:

Cells have asymmetric vulnerabilities (highly vulnerable to heat, tolerant to slight cooling).

Instead of standard symmetrical limits (e.g., $\pm 0.5^{\circ}\text{C}$), the 240B allows independent limits.

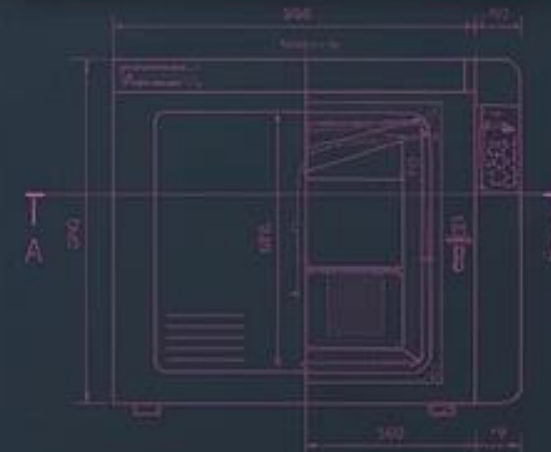
This prevents false alarms during routine door openings while strictly guarding against lethal heat spikes.

Mechanical CO2 Redundancy

Mechanical CO2 Redundancy:

The physical CO2 flow meter provides immediate visual confirmation of gas flow.

It allows manual fine-tuning, preventing sudden gas rushes that cause dangerous concentration overshoots.



Biological Safety & Contamination Control



Seamless Glass Inner Door (240B):

Replaces traditional stainless steel liners and screws. Eliminates physical blind spots and seams where bacteria hide. Incredibly easy to wipe down, drastically reducing contamination risk in high-humidity (80% RH) environments.

Programmable UV Sterilization:

The 293G relies on manual UV activation. The 240B features programmable UV that is strictly interlocked—it can only be activated when the machine is completely stopped. This eliminates the catastrophic risk of accidentally exposing living cultures to DNA-damaging UV light during operation.



Digital Compliance: GMP & 21 CFR Part 11 Audit Ready



Data Capacity:

293G

(5,000 records)

vs.

240B

(Up to 10 Years /
10 Million records).

Maintenance

Can set operational parameters, view historical curves, and monitor system logs.

Operator

View Only. Prevents accidental screen-touches during routine checks that could disrupt the environment.

Administrator

Full control. Access permissions, data export formats, UV sterilization, and screen locks.



Unbreakable Audit Trails:

Exports complete, non-editable PDF audit trails with timestamps directly via USB, ensuring absolute data integrity.

Core Specifications: The Master Matrix

	ZWYC-293G (Flagship Classic)	ZWYC-240B (Ultimate Pioneer)
Thermal Architecture	Heater 500W + Compressor 118W	Peltier 250W ✓
Drive System	Direct Beltless	FOC Magnetic Drive ✓
Footprint	0.642 m ²	0.389 m ² ✓
Max Capacity	5L x 2	5L x 2 Tie ✓
Amplitude	1-50mm Stepless ✓	25mm Fixed
Programming	1 Program/10 Segments	5 Programs/100 Segments, Clock Mode ✓
Digital Permissions	None	3-Level, 21 CFR Part 11 ✓
Humidity	Active Steam ✓	Passive up to 80% RH

Selection Diagnostic: Matching Your Laboratory's Ultimate Constraint

What is your laboratory's primary challenge?

A

Pursuing extreme parameters and complex variables?

- Do you need rigorous, high-precision active humidity?
- Do you frequently switch between microplates and giant flasks?

Choose ZWYC-293G:
The Mature Micro-Environment Master.

B

Space-constrained with strict data compliance requirements?

- Is benchtop space at an absolute premium?
- Are your cells highly sensitive to mechanical vibration?
- Do you require GMP / 21 CFR Part 11 audit trails?

Choose ZWYC-240B:
The Efficiency & Compliance Pioneer.

No matter the demand, Labwit delivers the optimal solution.