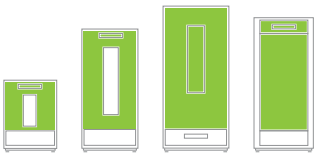
PHCbi

Life Science
Innovator
Since 1966

LABORATORY INCUBATORS AND GROWTH CHAMBERS

Heated and Cooled
Heated, Cooled, Controlled Humidity



MIR-154-PA | MIR-254-PA
MIR-554-PA | MLR-352H-PA

PHC Corporation of North America

www.phchd.com/us/biomedical

Ideal for applications where *precise* **TEMPERATURE CONTROL** IS REQUIRED.

4.3 cu.ft. | *MIR-154-PA*

8.4 cu.ft. | *MIR-254-PA*

14.3 cu.ft. | *MIR-554-PA*

10.4 cu.ft. | *MLR-352H-PA*

Essential Systems

PHCbi brand temperature controlled incubators and growth chambers include a suite of complementary operating systems designed to work together to achieve the highest level of reproducibility. Each model uses a combination of essential technologies which share performance functions across the product family.

- Temperature Range
- Controller
- Programming
- Conditioning
- Humidification
- Lighting
- Door
- Construction

Fundamentals

For more than 50 years, PHC Corporation has maintained a reputation for worldwide leadership in design and manufacture of general purpose incubators and associated laboratory equipment used in biopharmaceutical, life sciences, academic, healthcare and government markets.

PHCbi brand incubators are designed to minimize uncertainty by providing stable, uniform and accurate conditions from one day to the next. Innovative designs, advancements in sensors, programmable controllers, ergonomic cabinet construction and creative material applications have earned PHCbi brand best-in-class reputation for clinical and research uses where reproducibility is critical.

General Applications

Microbiology testing and research

Bacteriology and municipal wastewater testing

Genetics and drosophila breeding

Diurnal growth studies

Plant cell culture and germination

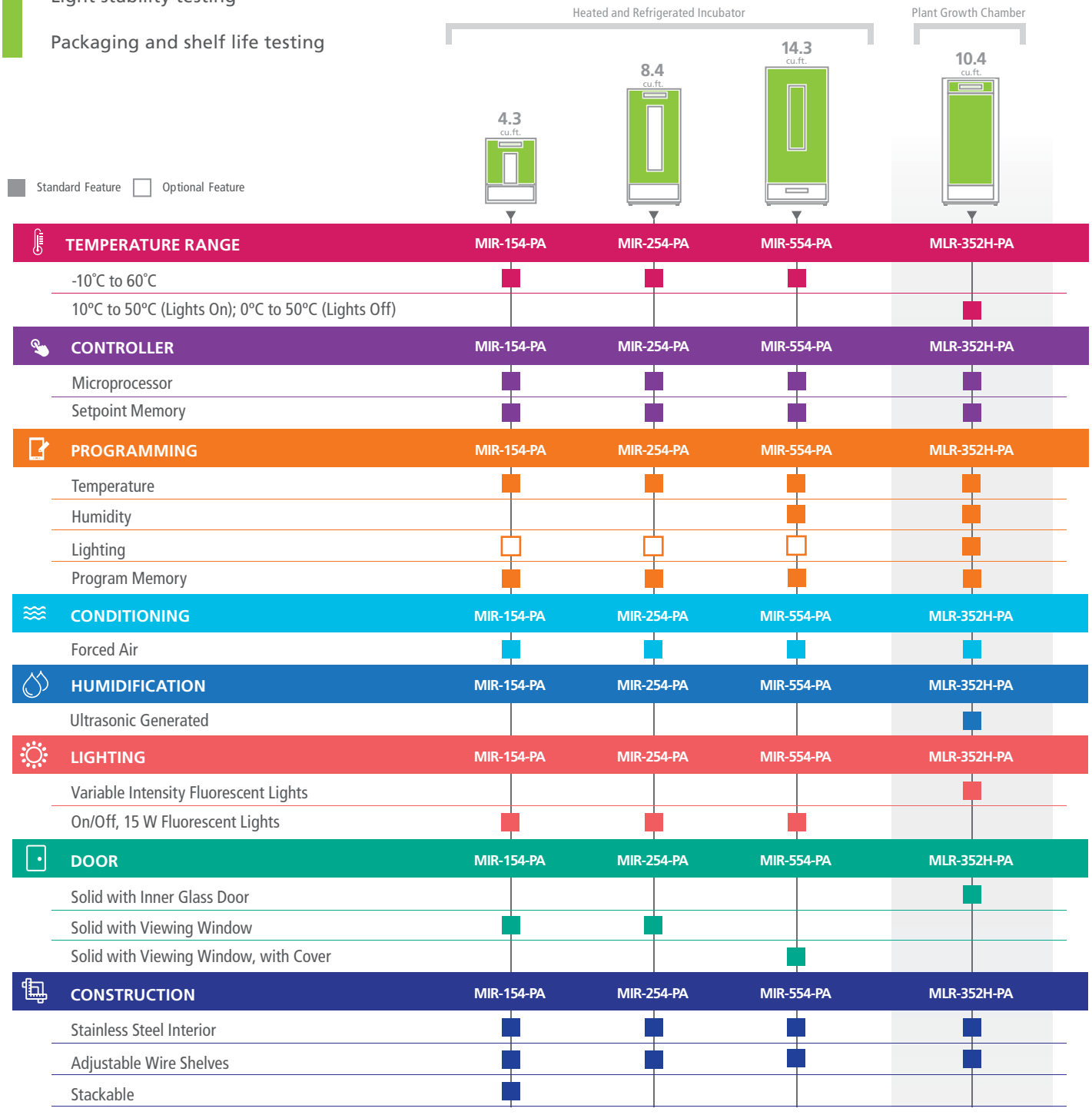
Pesticide tolerance testing

Light stability testing

Packaging and shelf life testing

PHCbi brand incubators represent generations of successful product development in response to emerging laboratory protocols used around the world.

These cabinets assure stability and accuracy required for reproducible results in the laboratory, from one day to the next, from one protocol to another.



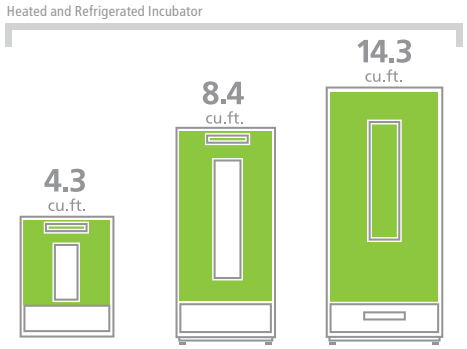
HEATED AND COOLED INCUBATORS

Models: MIR-154-PA | MIR-254-PA | MIR-554-PA

Operating Parameters

Temperature range -10°C to 60˚C (ambient temperature: 5˚C to 35˚C, no load)

Programmable setpoint



Heated and Cooled

Choose from three models, 4.3 cu.ft., 8.4 cu.ft. and 14.3 cu.ft.

Control System

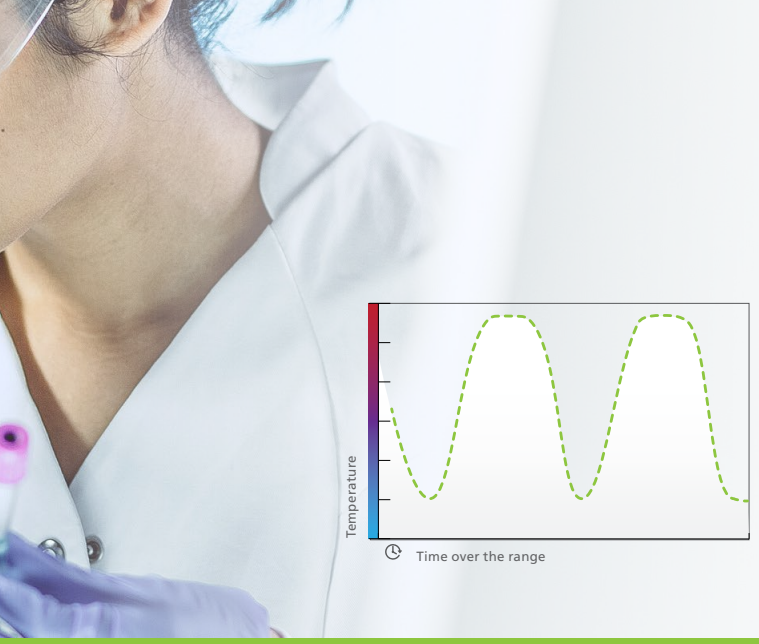
- Integrated control module with easy-to-read display
- Softkey multiple button menu with LCD alphanumeric display
- Programmable 8-bit microprocessor with PID (proportional, integral, derivative) logic with setpoint accuracy to ±0.2°C
- Program functions include inputs for setpoints, memory, start and stop dates, clock and timer
- Temperature deviation alarm limit settings
- Setpoint memory; retains settings during power failure, restores normal operation when power is restored
- Data capture and logging can be viewed on a graphical display screen

Refrigeration System

- Research quality refrigeration components with intelligent, microprocessor controls for managing tight parameters
- Robust cooling system with rapid response to demand from warm loads and high ambient conditions
- Reliable hermetically-sealed compressor with air-cooled condenser

Cabinet, General Features

- Ergonomic design with easy-to-use door hardware
- Reversible outer door with dual pane glass viewing window. MIR-554-PA has a light tight door with viewing window and cover.
- Gentle airflow assure uniformity and quick temperature recovery after door openings
- Vibration-free operation



Programmable

Up to 10 programs can be stored in the microprocessor memory, each with up to 12 steps over time. Programs can be cyclical step and repeat, step to constant setpoint or any combination of temperature and time over the range. Ramp up, down and dwell points can be established and repeated to meet individual protocols.

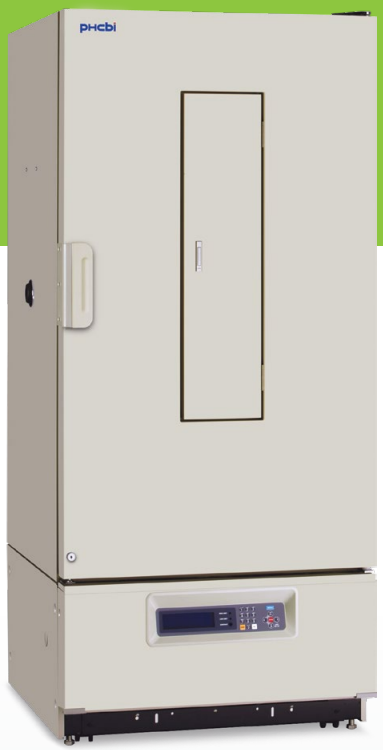
Interior lighting can also be programmed On/Off as required.

Cabinet, Model MIR-154-PA | 4.3 cu.ft. (shown stacked)

- Compact design, ideal for under-counter or countertop installation
- Stackable to double capacity in the same footprint
- Three coated open wire shelves
- Access port with cap, 1.57” diameter

Cabinet, Model MIR-254-PA | 8.4 cu.ft.

- Slim profile design, only 27.6” wide
- Five coated open wire shelves
- Access port with cap, 1.57” diameter



Cabinet, Model MIR-554-PA | 14.3 cu.ft.

- Efficient cabinet design, only 31.5” wide
- Solid, light-tight door with covered viewing window
- Five coated open wire shelves
- Dual access ports with caps, 1.57” diameter, left and right side

MLR Series

Programmable Temperature, Humidity, Lighting, Drosophila and Plant Growth

Operating Parameters

Temperature range 10°C to 50°C (max lighting); 0°C to 50°C (lights off)

Programmable setpoints for temperature, humidity, lighting On/Off cycle

Programmable

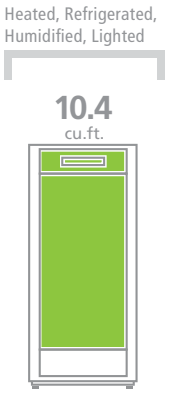
Up to 10 programs can be stored in the microprocessor memory, each with up to 12 steps over time. Programs can be cyclical step and repeat, step to constant setpoint or any combination of temperature and time over the range. Ramp up, down and dwell points can be established and repeated to meet individual protocols.

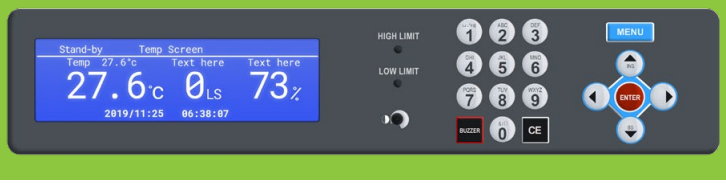
PROGRAMMABLE LIGHTING				
Program Step	Door	Inside Right	Inside Left	Total Lamps On
0				0
1				1
2				2
3				3
4				9
5				15

Program step functions permit six combinations of light control based among a total of fifteen fluorescent lamps. These include five in the door, five left side interior and five right side interior. Program steps permit variable aggregate intensity managed over time, a function critical to plant growth, light stability testing, package material selection and research into light sensitivity for pharmaceutical products. Standard 40-watt fluorescent lamps are available in a variety of narrow or broad spectrum wavelengths to meet specific applications.

HEATED, COOLED AND HUMIDIFIED GROWTH CHAMBER

Model: MLR-352H-PA





Refrigeration System

- Research quality refrigeration components with intelligent, microprocessor controls for managing tight parameters
- Robust cooling system with rapid response to demand from warm loads and high ambient conditions
- Reliable hermetically-sealed compressor with air-cooled condenser

Humidification System

- Humidity control 60 to 90% RH (LS: 0, Temp: 15 to 45°C); 55-85% RH (LS: 5, Temp: 15 to 45°C)
- Ultrasonic generator provides humidity on demand
- Membrane humidity sensor allows for high accuracy and reproducibility expressed as a relative percentage

Lighting System

- Fluorescent lamps, 5 in door, 10 interior left and right side (15 total)
- Programmable On/Off cycles

Cabinet, General Features

- Ergonomic design with easy-to-use door hardware
- Gentle airflow assures uniformity and quick temperature and humidity recovery after door openings
- Access port with cap, 1.57” diameter

Control System

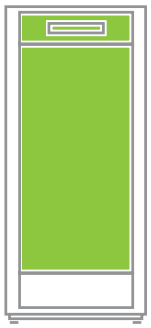
- Integrated control module with easy-to-read display
- A unique “join” function permits sequential linking of up to 9 programs which can run automatically to simulate a wide variety of environmental conditions over parameters and time.
- Variable stepped intensity fluorescent lamps create uniform lighting
- Softkey multiple button menu with LCD alphanumeric display
- Programmable 8-bit microprocessor with PID (proportional, integral, derivative) logic with setpoint accuracy to ±0.2°C
- Programmable functions include inputs for setpoints, memory, start and stop dates, clock and timer
- Pre-programmed for temperature and time, 12 step, 10 programs (ramp/soak)
- Self adjusting temperature deviation alarm limit settings
- Setpoint memory; retains settings during power failure, restores normal operation when power is restored
- Calibration functions for temperature and humidity built-in
- Data capture and logging

SPECIFICATIONS

Model: MLR-352H-PA

Heated, Refrigerated, Humidified, Lighted

10.4
cu.ft.



MLR-352H-PA

Dimensions		MLR-352H-PA
Exterior Dimensions (W x D x H)	inches | mm	29.9 X 27.6 x 72.2 | 760 x 700 x 1835
Interior Dimensions (W x D x H)	inches | mm	20.5 x 19.3 x 44.7 | 520 x 490 x 1135
Volume	cu.ft. | liters	10.4 | 294
Net Weight	lbs | kg	518 | 235
Performance		
Warranty		2 years parts & labor
Cooling Performance	℃	10°C to 50°C (lights on); 0°C to 50°C (lights off)
Temperature Uniformity	℃	±2.5°C (lights on), ±1.0°C (lights off)
Humidity (RH control range between 15°C and 45°C)	%	60% R.H. to 90% R.H. – lights off
Humidity Uniformity	%	+/-5%
Control		
Controller		Microprocessor
Display		LCD - alpha numeric viewscreen
Temperature Sensor		Thermistor
Humidity Sensor		Capacitive
Programming – Temperature, Humidity and Lights		12 steps (10 programs), 98 cycle or limitless clock mode: 00:00~23hours 59 minutes; timer mode: 00:01~99hours 59 minutes
Refrigeration		
Refrigeration System		Single compressor
Compressor	w	1 (325 output)
Filter	qty	1 (removable, cleanable)
Refrigerant		SNAP approved R-513A
Evaporator		Main, cooling chamber
Sub-Evaporator		Lower rear, lowers humidity
Insulation Material		Rigid polyurethane foamed-in place
Defrost		Automatic and manual
Condensate Evaporator		Bottom mount, removable, cleanable
Conditioning System		
Method		Fan forced air
Heater	w	1 (381)
Construction		
Exterior		Painted steel
Interior		Stainless steel
Light	qty	5 (door), 5 (right Side), 5 (left side) 40W fluorescent
Wire Shelves – Adjustable [1]	qty	4 (upper)
Shelf – Dimension (W x D)	inches | mm	18.3 x 17.7 | 465 x 450
Max. Load per Shelf	lbs | kg	55 | 25
Wire Shelf 2	qty	1 (lower)
Shelf – Dimension (W x D) [2]	inches | mm	14.0 x 15.6 | 355 x 395 (w/ stainless steel cover)
Max. Load per Shelf	lbs | kg	55 | 25
Access Port Location		Top, left corner
Leveling Feet - Adjustable	qty	4
Casters	qty	4
Alarms	(V=Visual Alarm, B=Buzzer Alarm, R=Remote Alarm)	
Power Failure		R
High Temperature		B-R
Low Temperature		B-R
Filter		V-B-R
Humidity Sensor		V-B-R
Door Open		V-B-R
Remote Alarm Contacts		DC 30V 2 A (normally open, normally closed, common)
Power Supply		115V, 1Ø, NEMA 5-15P, requires NEMA 5-15 R receptacle
Frequency	Hz	60
Noise Level	dB(A)	45, lights off | 47, lights on
Options		
Water Supply Reservoir		Included
Supply Hose		Included
LabAlert Monitoring		Optional

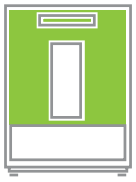
[1] Wire shelves with polyester coating
[2] Wire shelf with polyester coating and stainless cover
Note: Design or specification may be subject to change without notice.
The unit with CE Mark complies with EC directives.

SPECIFICATIONS

Models: MIR-154-PA | MIR-254-PA | MIR-554-PA

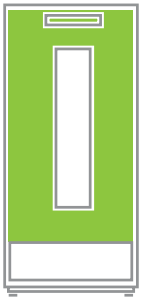
Heated and Refrigerated Incubator

4.3
cu.ft.



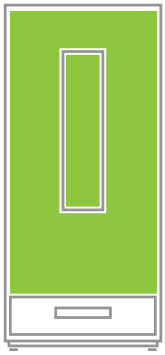
MIR-154-PA

8.4
cu.ft.



MIR-254-PA

14.3
cu.ft.



MIR-554-PA

Dimensions		MIR-154-PA	MIR-254-PA	MIR-554-PA
Exterior Dimensions (W x D x H)	inches | mm	27.6 x 22.8 x 40.1 | 700 x 580 x 1018	27.6 x 22.8 x 63.7 | 700 x 580 x 1618	31.5 x 32.8 x 71.3 | 800 x 832 x 1810
Interior Dimensions (W x D x H)	inches | mm	24.4 x 14.5 x 21.9 | 620 x 368 x 555	24.4 x 14.5 x 42.8 | 620 x 368 x 1088	25.2 x 21.7 x 45.7 | 640 x 550 x 1160
Volume	cu. ft. | liters	4.3 | 123	8.4 | 238	14.3 | 406
Net Weight	lbs | kg	172 | 78	238 | 108	430 | 195
Performance				
Warranty		2 years parts & labor, 3 years compressor parts	2 years parts & labor, 3 years compressor parts	2 years parts & labor, 3 years compressor parts
Cooling Performance [1]	˚C	-10°C to 60°C	-10°C to 60°C	-10°C to 60°C
Uniformity	˚C	+/- 1.5	+/- 1.5	+/- 1.5
Control				
Controller		Microprocessor	Microprocessor	Microprocessor
Display		LCD - alpha numeric viewscreen	LCD - alpha numeric viewscreen	LCD - alpha numeric viewscreen
Temperature Sensor		Thermistor	Thermistor	Thermistor
Programming		12 steps, 1 to 99 repeatable, max. 10 program memory	12 steps, 1 to 99 repeatable, max. 10 program memory	12 steps, 1 to 99 repeatable, max. 10 program memory
Refrigeration				
Refrigeration System		Single compressor	Single compressor	Single compressor
Compressor	W	1 (150 Output)	1 (250 Output)	1 (250 Output)
Condenser		Wire / tube – exterior back	Wire / tube – exterior back	Wire / tube – exterior back
Refrigerant		SNAP approved R-513A	SNAP approved R-513A	SNAP approved R-513A
Conditioning System		Fan forced fir	Fan forced air	Fan forced air, rear wall plenum
Insulation Material		Rigid polyurethane foamed-in place	Rigid polyurethane foamed-in place	Rigid polyurethane foamed-in place
Defrost		Automatic and manual	Automatic and manual	Automatic and manual
Defrost Heater	W	1 (141)	1 (218)	1 (322)
Construction				
Exterior		Painted steel	Painted steel	Painted steel
Outer Door	qty	1 (Solid painted steel w/ triple pane view window)	1 (Solid painted steel w/ triple pane view window)	1 (Solid painted steel w/ triple pane view window and light tight door)
Interior		Stainless steel	Stainless steel	Stainless steel
Light		1 (15W fluorescent)	1 (15W fluorescent)	1 (15W fluorescent)
Outer Door - Key Lock		—	—	Standard
Stackable		Yes – w/ optional tray	—	—
Wire Shelves – Adjustable [2]	qty	2 (upper)	5	4
Shelf – Dimension (W x D)	inches | mm	22.4 x 11.8 | 570 x 300	22.4 x 11.8 | 570 x 300	22.9 x 17.3 | 580 x 440
Max. Load per Shelf	lbs | kg	44 | 20	44 | 20	110 | 50
Wire Shelf [2]	qty	1 (lower)	—	1 (lower)
Shelf – Dimension (W x D)	inches | mm	21.6 x 9.2 | 550 x 235	—	22.9 x 19.3 | 580 x 490
Max. Load per Shelf	lbs | kg	44 | 20	—	110 | 50
Stainless Steel Tray	qty	—	1 (not adjustable)	—
Access Port	qty	1 (w/ plug)	1 (w/ plug)	2 (w/ plug)
Access Port Position		Left sidewall	Left sidewall	Left and right sidewall
Access Ports	inches | mm	1.6 | 40	1.6 | 40	1.6 | 40
Casters	qty	—	4	4
Leveling Feet - Adjustable	qty	4	4	4
Alarms		(V=Visual Alarm, B=Buzzer Alarm, R=Remote Alarm)		
Power Failure		R	R	R
High Temperature		B-R	B-R	B-R
Low Temperature		B-R	B-R	B-R
Door Open		V-B-R	V-B-R	V-B-R
Remote Alarm Contacts		DC 30V 2 A (normally open, normally closed, common)	DC 30V 2 A (normally open, normally closed, common)	DC 30V 2 A (normally open, normally closed, common)
Electrical and Noise Level				
Power Supply		115V, 1Ø, NEMA 5-15P, requires NEMA 5-15 R receptacle	115V, 1Ø, NEMA 5-15P, requires NEMA 5-15 R receptacle	115V, 1Ø, NEMA 5-15P, requires NEMA 5-15 R receptacle
Frequency	Hz	60	60	60
Noise Level	dB(A)	41	44	45
Options				
Stacking Plate		MIR-S154SB	—	—
Pad Lock Bracket		MIR-LP	MIR-LP	—
Interface Board		MTR-L03	MTR-L03	MTR-L03
Interface Board		MTR-480	MTR-480	MTR-480
Light Add-On Kit		MIR-L15	MIR-L15	MIR-L15
Inner Door Kit		—	—	MIR-55ID
LabAlert Monitoring		Optional	Optional	Optional

[1] **Ambient temperature: 5°C to 35°C, no load**
[2] **Polyethylene coated wire shelves**
Note: The unit with CE mark complies with EC directives. Design or specifications may be subject to change without notice.

SERVICES

PHC Corporation of North America offers a full line of pre-delivery and on-site calibration and validation services. Validation services range from process/manufacturing audits, quality compliance, risk assessment and software qualification. Advanced technology is integrated with contemporary processes for turnkey solutions using NIST calibrated instrumentation for validation and qualification in accordance with all current GxP Regulations (GMP, GLP, GCP), ISO, FDA 21 CFR Part 11, CAP, AABB, CLIA, USDA, local standards and other regulations. Our calibration services are specially designed to verify quality compliance and ensure display accuracy to manufacturing and regulatory specifications. Procedures and documentation are designed to conform to NIST/ISO requirements. ISO/IEC 17025* calibration is available upon request.

We also offer installation and continued technical services.
Visit www.phchd.com/us/biomedical/services to learn more.

*Calibration, as well as IOQ/FAT documentation, are available upon request and quoted separately. ISO/IEC 17025.2005 specifies the general competence to carry out testing and/ or calibration including sampling. It covers testing and calibration preformed using standard methods, non-standard methods and laboratory-developed methods. (Ref: ISO Website, May 2016).

LABALERT MONITORING

A real-time monitoring and notification system will protect your process. LabAlert provides independent, wireless monitoring for a range of equipment. The secure, cloud-based solution offers comprehensive airflow monitoring with customizable dashboards for easy user interface. No software installation is required. Supports FDA 21 CFR Part 11 compliance. LabAlert is scalable to meet corporate enterprise standards for efficacy and safety. It works across multiple units, multiple locations and easily adapts to growing facilities.

ADDITIONAL PRODUCTS

Complementary product lines under the PHCbi brand include the space saving and energy efficient VIP® ECO and VIP Series ultra-low temperature freezers, cryogenic and biomedical freezers, pharmacy and high performance refrigerators, cell culture CO_2 and multigas incubators.

For more information, please call PHC Corporation of North America at 800-858-8442, email info@us.phchd.com or visit http://www.phchd.com/us/biomedical.

Specifications are subject to change without notice.
For latest specification information contact PHC Corporation of North America at info@us.phchd.com.

PHCbi

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PHC Corporation of North America
PHC Corporation of North America is a leader in laboratory equipment for biopharmaceutical, life sciences, academic, healthcare and government markets. The company is operated as a subsidiary of PHC Holdings Corporation, Tokyo, Japan, which is a global healthcare company involved in the three core businesses of Medical Devices, Healthcare IT and Life Sciences. Product lines under the new PHCbi brand include the space saving and energy efficient VIP® ECO, TwinGuard® and VIP Series ultra-low temperature freezers, cryogenic and biomedical freezers, pharmacy and high performance refrigerators, cell culture CO_2 and multigas incubators, programmable heated and refrigerated microbiological incubators and Drosophila/Plant Growth Chambers. For more information, please call PHC Corporation of North America at 800-858-8442, email info@us.phchd.com or visit http://www.phchd.com/us/biomedical.