Biora Reach-In Chambers

For Plant Science and Agricultural Biotechnology

Controlled environments designed to sustain precise conditions, as well as maximise production capabilities, product quality and security.

mineARC SYSTEMS | biora

Fully customisable Grow Chamber and Environmental Control Room solutions.

mineARC SYSTEMS

Company Profile

MineARC Systems have been at the forefront of controlled environment design, development and manufacture for over 20 years; striving to improve the health and safety standards within the mining, tunnelling, chemical processing, disaster relief and extreme weather industries worldwide. MineARC Systems' industry leading refuge chambers and safe havens are present in over 60 countries and have been used in multiple real-life emergencies to keep occupants safe.

MineARC's key focus on quality control and product development has meant that all MineARC Refuge Chambers and Safe Havens comply with the highest international regulations and recognised 'world's best practice' industry guidelines.

In-house research and development with our team of engineers, electrical designers, technical experts, as well as production and service technicians has allowed us to branch out into multiple industries over the years. Our knowledge and proficiencies have now given us the opportunity to gain recognition beyond our refuge chambers and safe havens and expand into the science and research industries. Our Biora Grow Chamber is a perfect solution for controlled environment agriculture and climatic stability testing.

As advocates of innovation, our dedication to ongoing research and development is driven by our emphasis on client satisfaction. MineARC listens to and understands the needs of our clients, whilst never compromising on safety and quality. Placing a high importance on building strong relationships with our clients allows us to develop unique and customised solutions. This approach enables us to improve research and growth facilities, reduce costs and simplify operations.

MineARC's manufacturing facilities in the United States, Australia and Africa, as well as offices in Europe, China, Mexico and Chile allow us to provide local technical support to all clients.

www.minearc.com

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MineARC's Biora offers multi-functional Reach-In Grow Chambers and Environmental Control Rooms for all plant science and agricultural biotechnology applications.

Enjoy the benefits of innovative functionality, versatility and the replication of any environmental condition within a secure and robust shell.

MineARC offers a consultative design process enabling clients to have control over all aspects of the design process.

Proven accurate monitoring systems for the efficient production of controlled environment agriculture.

For use in the research of:
- Plant Growth
- Germination
- Tissue Culture
- Crop Sciences & Diseases
- Algae
- Arabidopsis
- Entomology
- Seeds Storage and Drying
- Medical Cannabis

✓ Precise environmental control based on required specifications

✓ Remote monitoring and inter-chamber connectivity

✓ Purpose-engineered gas monitoring and atmosphere control

✓ Dedicated Engineering team to provide customised configurations and internal features

✓ End-to-end service with local after sales support and maintenance schedules

✓ ISO 9001:2015 certified company

TRC ISO 9001:2015 Quality Management Systems

Australian C-Tick Standards: AS4100-1998, AS3570.1-18, AS2208, AS3000, AS1716-15

Canadian Standards Association (CSA)

United States National Electrical Code (NEC) 2013/14

Quality Management System (QMS)

European CE Certified to Machinery Norms

Biora Reach-In Chambers are available in a range of sizes, from 240 - 1400L; providing complete control over environmental conditions to suit any requirement.

When compared to other Reach-In Chambers (RICs) on the market, Biora leads the charge; with a ground-breaking control system that allows for intuitive programming and remote, web-based monitoring and management. Biora RICs also offer a large range of LED lighting options, unique to the research industry; including a selection of low intensity solutions for tissue culture sampling.

✓ Various sizes available, from 240-1400L

✓ Coated steel construction with insulated doors

✓ HMI control system with intuitive programming

✓ Adaptable, multi-tier shelving

✓ Large range of individually adjustable LED lighting

✓ Horizontal air circulation options

✓ Temperature control

✓ Security options available on request

✓ Leasing and hire to buy options

✓ CO_2 monitoring and enrichment (optional)

✓ Remote web-based chamber monitoring and control (optional)

HMI CONTROL PANEL

SEALING DOUBLE DOORS

VIEWING WINDOWS

AIR FLOW MANAGEMENT

MULTI-TIER SHELVING

ADJUSTABLE LIGHTING

COATED STEEL SHELL

Biora Reach-In Chambers
- Lighting Options

Regardless of the chamber's size or configuration, MineARC can build a customised lighting solution that will meet client specifications and spectrum requirements. Our engineers can provide varying levels of lighting control; all accessible from the chamber's HMI and remote control system.

MineARC offers a range of LED lights of varying intensities; providing complete flexibility for any project. MineARC's engineers and lighting partners can advise clients on the best lighting solution for their application.

✓ Custom LED lighting design based on requirements

✓ Control over canopy, intensity and spectrum for day time and seasonal replication

✓ Single and multi-tier opportunities

✓ Optional high-quality built-in light measurement equipment for refinement of testing conditions

LED Light Specifications

Model	Intensity (umols^{-1}m^{-2} @150mm)	LUX (lx)	Voltage (V)	Colour	Size (mm)
LED SUN LIGHT Z4N	1100	30915	110/220	Adjustable	40 x 60
LED SUN LIGHT Z4N1	1200	25169	110/220	Adjustable	40 x 60
LED SUN LIGHT Z4NW	1000	74337	110/220	Day Light	40 x 60
LED Z9	1700	87162	110/220	Adjustable	40 x 60
LED SUN LIGHT Z190	400	39078	110/220	Day Light	40 x 60

LED Spectrum Data

Model	Blue (400-500)	Green (500-600)	Red (600-700)	IR(700-800)	IRR (W/m²)	W	λp (nm)
LED SUN LIGHT Z4N	450nm ±10nm	550nm ±10nm	660nm ±10nm	730nm ±10nm	254.0	400nm - 700nm	453
LED SUN LIGHT Z4N1	450nm ±10nm	-	660nm ±10nm	730nm ±10nm	238.6	400nm - 700nm	657
LED SUN LIGHT Z4NW	400nm - 500nm	500nm - 600nm	600nm - 700nm	700nm ±10nm	218.4	400nm - 700nm	468
LED Z9	425nm - 450nm	525nm	625nm - 660nm	730nm	426.9	350nm - 800nm	449
LED SUN LIGHT Z190	400nm - 500nm	500nm - 600nm	600nm - 700nm	700nm ±10nm	107.2	400nm - 700nm	571

Note: Biora Reach-In Chambers are supplied with Z4NW LED lighting in single tier or Z190 LED lighting 2+ tier chambers, as standard; additional lighting options are available.

Biora UPRTek PG200N Spectrometer

The PG200N Spectrometer provides plant reference spectrum for users to compare and compensate the necessary light wavelength required by each particular plant. Utilising the PG200N will accelerate plant growth, flowering and vegetation.

- JIS AA Class and DIN B Class compliant
- IP66 rated water repellent sensor
- 350-800 nm wavelength range
- User friendly HMI
- Customisable PPFD/PFD range

Biora Reach-In Chambers
- Control and Security Options

An industry-leading control system allows for intuitive programming and remote, web-based management. Enjoy real-time monitoring of all control processes, with the ability to access historical data.

The LED high resolution, user-friendly touch screen can also be customised with various levels of security to ensure your project is kept safe and secure at all times.
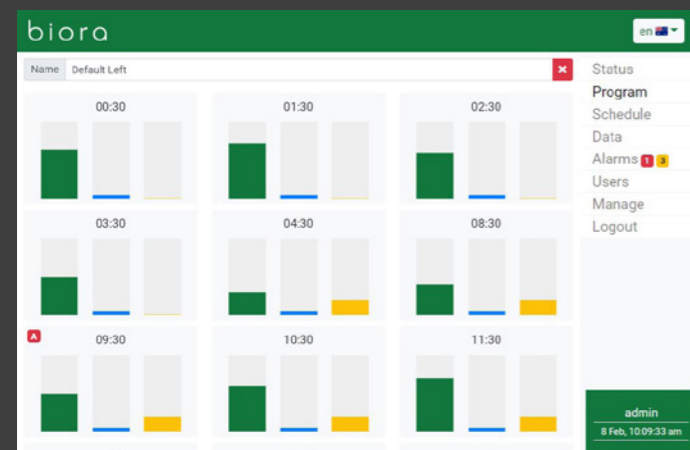
✓ Web-based software with both local and remote access

✓ Real-time monitoring of all control processes

✓ Access to historical data

✓ Over 50 customisable programs

✓ Data export and import options

✓ Push notifications based on custom alert settings

✓ Data protection and security options

✓ Customised HMI options and local engineering support

Chamber HMI Control

In addition to its remote capabilities, the control system can also be accessed by a user-friendly touch-screen HMI Panel, located on the face of each Biora Reach-In Chamber.

Chamber status, historical data, alarms and programming can all be accessed and controlled via the HMI.
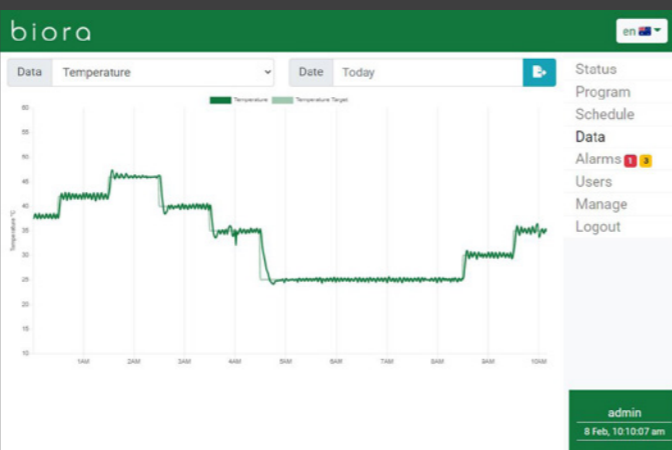
Safety

The in-built control system provides the added advantage of security within the grow chamber; monitoring access at the chamber or remotely, including:

- Four-digit changeable pincode
- Three levels of access: user, manager, service engineer
- Electronic tracking and historical data

Biora Reach-In Chambers
- Features

Airflow
- Horizontal airflow is ideal for small plants and specimens
- Closely emulates natural airflow conditions
- Utilises maximum available space
- Uniform temperature across tiers

Temperature Control
- Inbuilt sensor
- Data displayed on HMI screen accessible at chamber or remote computer, when linked
- Programmable and adjustable range
- Can be independently controlled for more complex environmental conditions
- Easily access process and set value data

Programming & Data log
- Multiple programs available for step or ramp processes
- Ability for single occurrence or repeated indefinitely
- Automatic data logging
- User-friendly design

Alarms
- Audible and colour-coded alarms activate when conditions deviate within the chamber such as temperature, humidity, CO_2 pressure, power or door open
- Alarm activity visible on HMI display or connected computer

Carbon Dioxide Control (optional)
- CO_2 levels controlled at HMI panel
- Gas monitoring and injection system included with addition

Also Available: Hire & 'Hire to Buy'

Expand your research capabilities with ease and efficiency with our rental options. Select Biora Reach-In Chambers are available to hire offering a practical solution for every need.

Our 'Hire to Buy' option provides the flexibility to buy out the Biora Reach-In Chamber after 12 months of hire.

Biora 240L RIC

Volume: 240L
Style: Benchtop
Interior Dimensions: 700Wx570Dx620H
Exterior Dimensions: 840Wx930Dx1360H
Exterior material: Coated steel
Interior material: Stainless steel
Doors: Single, condensation free observation window
Shelving: 1 stainless steel wire tray
Max Load per Tray: 30kg

Growth Area: $0.39m^2$ to $0.74m^2$
Growth Height: 290mm to 600mm
Connection: Mains cable with plug
Working Temperature (Lights On)*: 10-45°C
Humidity (Lights On): 50-85% (optional)
CO_2: Ambient to 5000ppm (optional)
Forced Air Circulation: Back to front
Communication: USB, optional LAN, Internet

Biora 600L RIC

Volume: 600L
Style: Single compartment
Interior Dimensions: 770Wx600Dx1300H
Exterior Dimensions: 870Wx970Dx1980H
Exterior Material: Coated steel
Interior Material: Stainless steel
Doors: Single, condensation free observation window
Shelving: up to 4 stainless steel wire trays
Max Load per Tray: 30kg

Growth Area: $1.41m^2$ to $1.88m^2$
Growth Height: up to 300mm
Connection: Mains cable with plug
Working Temperature (Lights On)*: 15-45°C
Humidity (Lights On): 50-85% (optional)
CO_2: Ambient to 5000ppm (optional)
Forced Air Circulation: Back to front
Communication: USB, optional LAN, Internet

Biora 700L RIC

Volume: 700L
Style: 2 separate compartments
Interior Dimensions: 1350Wx740Dx700H
Exterior Dimensions: 2100Wx1110Dx2030H
Exterior Material: Coated steel
Interior Material: Stainless steel
Doors: Single, condensation free observation window
Shelving: up to 4 stainless steel wire trays
Max Load per Tray: 30kg

Growth Area: $1.0m^2$
Growth Height: up to 700mm
Connection: Mains cable with plug
Working Temperature (Lights On)*: 10-45°C
Humidity (Lights On): 50-85% (optional)
CO_2: Ambient to 5000ppm (optional)
Forced Air Circulation: Back to front
Communication: USB, optional LAN, Internet

Biora 800L RIC

Volume: 800L
Style: Single compartment
Interior Dimensions: 950Wx690Dx1220H
Exterior Dimensions: 1070Wx990Dx1950H
Exterior material: Coated steel
Interior material: Stainless steel
Doors: Single, condensation free observation window
Shelving: up to 4 stainless steel wire trays
Max Load per Tray: 50kg

Growth Area: $0.6m^2$ to $1.9m^2$
Growth Height: 380mm to 1200mm
Connection: Mains cable with plug
Working Temperature (Lights On)*: 10-45°C
Humidity (Lights On): 50-85% (optional)
CO_2: Ambient to 5000ppm (optional)
Forced Air Circulation: Back to front
Communication: USB, optional LAN, Internet

Biora 1200L RIC

Volume: 1200L
Style: Single compartment
Interior Dimensions: 1600Wx650Dx1200H
Exterior Dimensions: 1700Wx910Dx2070H
Exterior Material: Coated steel
Interior Material: Stainless steel
Doors: Double, condensation free observation window
Shelving: up to 6 stainless steel wire trays
Max Load per Tray: 50kg

Growth Area: $1.0m^2$ to $4.1m^2$
Growth Height: 270mm to 1200mm
Connection: Mains cable with plug
Working Temperature (Lights On)*: 10-45°C
Humidity (Lights On): 50-85% (optional)
CO_2: Ambient to 5000ppm (optional)
Forced Air Circulation: Back to front
Communication: USB, optional LAN, internet

Biora 1400L RIC

Volume: 1400L
Style: Single compartment
Interior Dimensions: 1410Wx690Dx1450H
Exterior Dimensions: 2050Wx925Dx2075H
Exterior Material: Coated steel
Interior Material: Stainless steel
Doors: Double, condensation free observation window
Shelving: up to 10 stainless steel wire trays
Max Load per Tray: 50kg

Growth Area: $0.9m^2$ to $3.8m^2$
Growth Height: 340mm to 1400mm
Connection: Mains cable with plug
Working Temperature (Lights On)*: 10-45°C
Humidity (Lights On): 50-85% (optional)
CO_2: Ambient to 5000ppm (optional)
Forced Air Circulation: Back to front
Communication: USB, optional LAN, internet

* Dependant on light selection

Features
Summary

Stainless Steel Interior	**In-built Alarms**
LED Touchscreen HMI	**Programmable Controller**
Observation Window	**Password Protection**
Air Flow Management	**Remote Monitoring System**
Temperature Control	

Standard Features

- Stainless steel construction
- Various sizes available, from 240-1400L
- Stainless steel wire trays
- Adaptable, multi-tier shelving
- Standard lighting
- LED Touchscreen HMI
- Fully insulated doors

- Condensation free observation window
- Temperature sensor and controller
- Large working temperature range (lights on/ lights off)
- Setting temperature accuracy 0.1°C
- Forced air circulation
- Primary, secondary and tertiary level alarms

- USB data point
- Password protection
- Multi-step programs
- Self-contained air-cooled condensing unit

Optional Features

- CO2 monitoring and enrichment
- Adjustable lighting options
- Remote web-based chamber monitoring and control
- Additional temperature, humidity, or carbon dioxide sensors
- Humidity control with extensive working humidity range (lights on/ lights off)
- Direct connection with computer (PC) for

monitoring and control available (LAN)
- Connection via Internet to control the entire fleet available
- Light data record
- Up to 8 programs can be independently and repeatable for the whole schedule
- Security options available on request

Designed for every requirement & any space