biora.

REACH-IN CHAMBERS

biora
REACH IN CHAMBER
480L

biora

by MineARC Systems

mineARC
SYSTEMS

MineARC Systems has been at the forefront of controlled environment design, development, and manufacture for twenty 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 recognized '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. A Biora Growth 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 and understands the needs of our clients, whilst never compromising on safety and quality. Placing high importance on building strong relationships with our clients allows us to develop unique and customized 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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Bespoke controlled environments.

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.
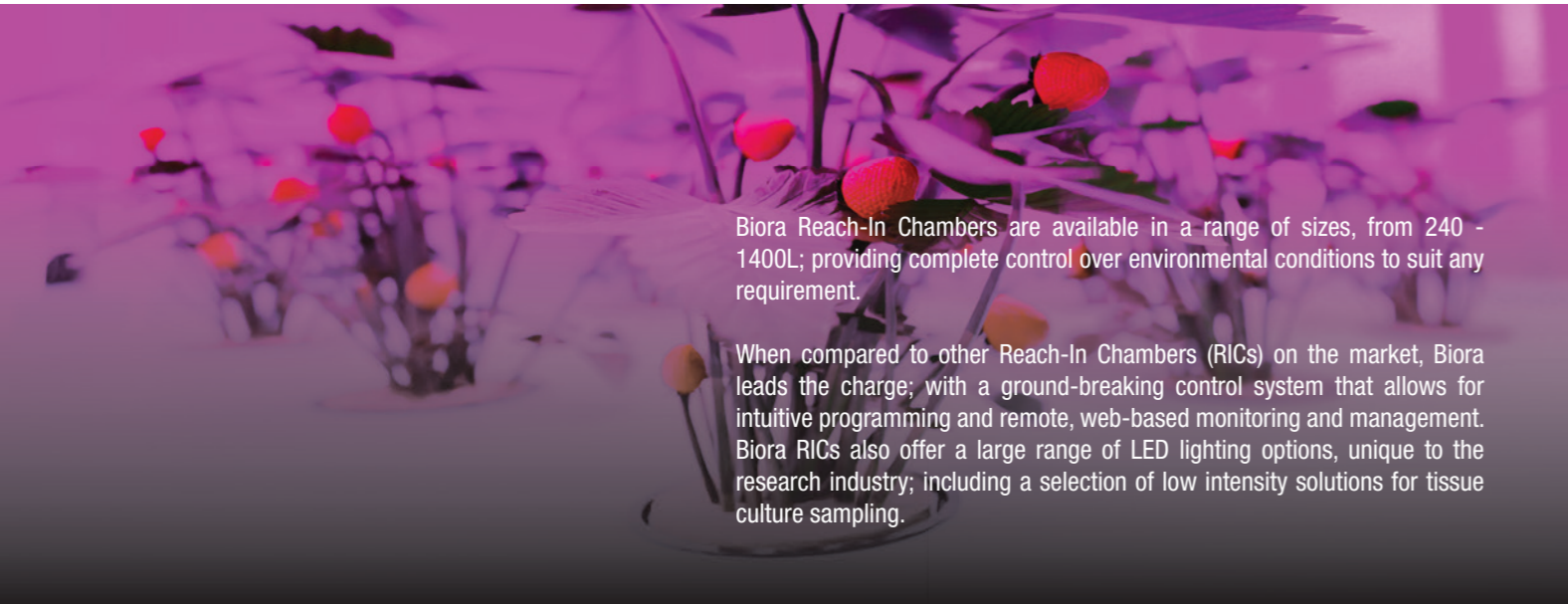
For use in the research of:
- Tissue Culture
- Incubation
- Environmental Testing
- Insect Rearing
- Plant Growth
- Algae Growth
- Arabidopsis
- Germination

Features

✓ 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

OVERVIEW

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.

Features

✓ Various models and sizes available, from 240-1400L	✓ Temperature control
✓ Coated steel construction with insulated doors	✓ Security options available on request
✓ HMI control system with intuitive programming	✓ Leasing and hire to buy options
✓ Adaptable, multi-tier shelving	✓ CO_2 monitoring and enrichment (optional)
✓ Large range of individually adjustable LED lighting	✓ Remote web-based chamber monitoring and control (optional)
✓ Horizontal air circulation options	✓ Additive humidity control (optional)

HMI CONTROL PANEL

SEALING DOUBLE DOORS

VIEWING WINDOWS

AIR FLOW MANAGEMENT

MULTI-TIER SHELVING

ADJUSTABLE LIGHTING

COATED STEEL SHELL

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	700	22454	110/220	Adjustable	40 x 60
LED SUN LIGHT Z4N1	700	21113	110/220	Adjustable	40 x 60
LED SUN LIGHT Z4NW	700	56653	110/220	Day Light	40 x 60
LED Z9	1300	72096	110/220	Adjustable	40 x 60
LED SUN LIGHT Z190	400	31891	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 & 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.

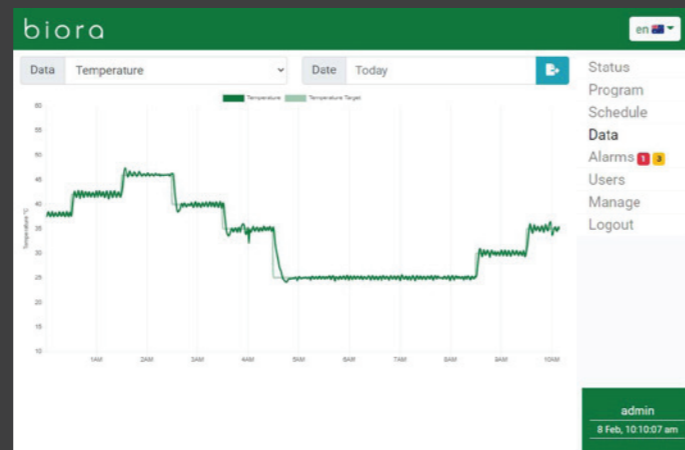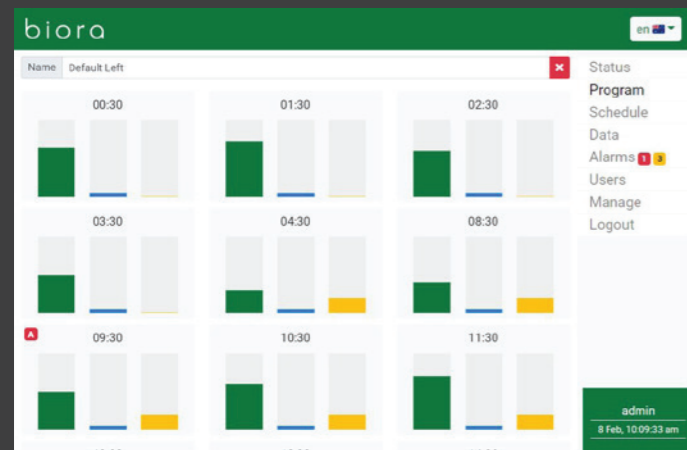| Features	
✓ Web-based software with both local and remote access	✓ Data export and import options
✓ Real-time monitoring of all control processes	✓ Push notifications based on custom alert settings
✓ Access to historical data	✓ Data protection and security options
✓ Over 50 customisable programs	✓ 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

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 REACH-IN CHAMBERS
RANGE

Biora 240L RIC

Volume:	240L	Growth Area:	0.39m² to 0.74m²
Style:	Benchtop	Growth Height:	290mm to 600mm
Interior Dimensions:	700Wx570Dx620H	Connection:	Mains cable with plug
Exterior Dimensions:	840Wx930Dx1360H	Working Temperature (Lights On)*:	10-45°C
Exterior material:	Coated steel	Humidity (Lights On):	50-85% (optional)
Interior material:	Stainless steel	CO_2:	Ambient to 5000ppm (optional)
Doors:	Single, condensation free observation window	Forced Air Circulation:	Back to front
Shelving:	1 stainless steel wire tray	Communication:	USB, optional LAN, Internet
Max Load per Tray:	30kg		

Biora 480L RIC

Volume:	470L	Growth Area:	0.39m² to 1.56m²
Style:	Single compartment	Growth Height:	260mm to 1040mm
Interior Dimensions:	W700xD590xH1145	Connection:	Mains cable with plug
Exterior Dimensions:	W900xD950xH1950	Working Temperature (Lights On)*:	10-45°C
Exterior material:	Coated steel	Humidity (Lights On):	50-85% (optional)
Interior material:	Stainless steel	CO_2:	Ambient to 5000ppm (optional)
Doors:	Single, condensation free observation window	Forced Air Circulation:	Side to Side
Shelving:	Up to 4 stainless steel wire trays	Communication:	USB, optional LAN, Internet
Max Load per Tray:	30kg		

Biora 500L RIC

Volume:	540L	Growth Area:	0.33m² to 1.65m²
Style:	Single compartment	Growth Height:	260mm to 1300mm
Interior Dimensions:	W630xD665xH1300	Connection:	Mains cable with plug
Exterior Dimensions:	W1030xD1070xH2050	Working Temperature (Lights On)*:	10-45°C
Exterior material:	Coated steel	Humidity (Lights On):	50-85% (optional)
Interior material:	Stainless steel	CO_2:	Ambient to 5000ppm (optional)
Doors:	Single, condensation free observation window	Forced Air Circulation:	Vertical
Shelving:	Up to 5 stainless steel wire trays	Communication:	USB, optional LAN, Internet
Max Load per Tray:	30kg		

Biora 600L RIC

Volume:	580L	Growth Area:	0.39m² to 1.56m²
Style:	Single compartment	Growth Height:	290mm to 1240mm
Interior Dimensions:	W770xD600xH1265	Connection:	Mains cable with plug
Exterior Dimensions:	W900xD1040xH1950	Working Temperature (Lights On)*:	10-45°C
Exterior material:	Coated steel	Humidity (Lights On):	50-85% (optional)
Interior material:	Stainless steel	CO_2:	Ambient to 5000ppm (optional)
Doors:	Single, condensation free observation window	Forced Air Circulation:	Side to Side
Shelving:	Up to 4 stainless steel wire trays	Communication:	USB, optional LAN, Internet
Max Load per Tray:	30kg		

Biora 700L RIC

Volume:	700L / compartment	Growth Area:	0.88m² to 1.76m²
Style:	Dual Compartment	Growth Height:	330mm to 700mm
Interior Dimensions:	1350Wx740Dx700H	Connection:	Mains cable with plug
Exterior Dimensions:	2100Wx1110Dx2030H	Working Temperature (Lights On)*:	10-45°C
Exterior material:	Coated steel	Humidity (Lights On):	50-85% (optional)
Interior material:	Stainless steel	CO_2:	Ambient to 5000ppm (optional)
Doors:	Single, condensation free observation window	Forced Air Circulation:	Back to front
Shelving:	1 stainless steel wire tray	Communication:	USB, optional LAN, Internet
Max Load per Tray:	50kg		

Biora 800L RIC

Volume:	800L	Growth Area:	0.60m² to 1.90m²
Style:	Single compartment	Growth Height:	380mm to 1200mm
Interior Dimensions:	950Wx690Dx1220H	Connection:	Mains cable with plug
Exterior Dimensions:	1070Wx990Dx1950H	Working Temperature (Lights On)*:	10-45°C
Exterior material:	Coated steel	Humidity (Lights On):	50-85% (optional)
Interior material:	Stainless steel	CO_2:	Ambient to 5000ppm (optional)
Doors:	Single, condensation free observation window	Forced Air Circulation:	Back to front
Shelving:	Up to 3 stainless steel wire trays	Communication:	USB, optional LAN, Internet
Max Load per Tray:	30kg		

Biora 1200L RIC

Volume:	1200L	Growth Area:	0.9m² to 3.6m²
Style:	Dual compartment	Growth Height:	270mm to 1200mm
Interior Dimensions:	1600Wx650Dx1200H	Connection:	Mains cable with plug
Exterior Dimensions:	1700Wx910Dx2070H	Working Temperature (Lights On)*:	10-45°C
Exterior material:	Coated steel	Humidity (Lights On):	50-85% (optional)
Interior material:	Stainless steel	CO_2:	Ambient to 5000ppm (optional)
Doors:	Single, condensation free observation window	Forced Air Circulation:	Back to front
Shelving:	Up to 4 stainless steel wire trays	Communication:	USB, optional LAN, Internet
Max Load per Tray:	30kg		

Biora 1400L RIC

Volume:	1400L	Growth Area:	0.8m² to 3.2m²
Style:	Dual compartment	Growth Height:	340mm to 1450mm
Interior Dimensions:	1410Wx690Dx1450H	Connection:	Mains cable with plug
Exterior Dimensions:	2050Wx925Dx2075H	Working Temperature (Lights On)*:	10-45°C
Exterior material:	Coated steel	Humidity (Lights On):	50-85% (optional)
Interior material:	Stainless steel	CO_2:	Ambient to 5000ppm (optional)
Doors:	Single, condensation free observation window	Forced Air Circulation:	Back to front
Shelving:	Up to 4 stainless steel wire trays	Communication:	USB, optional LAN, Internet
Max Load per Tray:	30kg		

BIORA REACH-IN CHAMBERS
APPLICATIONS

Tissue Culture

Tissue Culture Reach-In Chambers by Biora have been designed to bring the safest and most stable environment to samples.

Specialized stainless steel shelves, designed specifically for tissue culture use, allow for upward airflow that minimises condensation in petri dishes and jars. Choose from a range of LED lights to best suit your research project.

Tissue Culture Models
240L RIC
600L RIC
800L RIC
1200L RIC
1400L RIC

Incubation

Incubation Reach-In Chambers are provided with shelves and lighting on request, allowing clients to customise their unit specifically for their sample testing requirements.

Designed to provide a contaminant-free environment, they can replicate any temperature, humidity, lighting, pressure, and gas concentration within the internal atmosphere.

Incubation Models
240L RIC
480L RIC
600L RIC
800L RIC
1200L RIC
1400L RIC

Environmental Testing

Environmental Test Reach-In Chambers by Biora are available in a range of sizes, from 240 – 1400L; providing complete control over product testing within manipulated environmental conditions.

Units are provided with shelves and lighting on request, allowing clients to customise their unit specifically for their testing requirements.

Environmental Testing Models
240L RIC
480L RIC
600L RIC
800L RIC
1200L RIC
1400L RIC

Insect Rearing

Insect Rearing Reach-in Chambers from Biora have been designed with entomology as it's primary application, however can be used for a range of research applications.

Units are provided as standard with Vertical T8 lights (4 per side), however the 500L can be customised with LED wall plates if preferred. This vertical lighting provides excellent uniformity on all four sides of the chamber, whilst maximising internal space.

Insect Rearing Models
500L RIC
600L RIC
800L RIC

Plant Growth

Stainless steel shelves with glass covers and LED lights are available to order based on application and tier quantity requirements.

The 500L model provides a unique addition of LED wall plates, providing excellent uniformity via the vertical lighting.

Plant Growth Models
240L RIC
480L RIC
500L RIC
600L RIC
700L Dual RIC
800L RIC
1200L RIC
1400L RIC

Algae Growth

Stainless steel shelves with glass covers and LED lights are available to order based on application and tier quantity requirements.

The 500L model provides a unique addition of LED wall plates, providing excellent uniformity via the vertical lighting.

Algae Growth Models
240L RIC
480L RIC
500L RIC
600L RIC
700L Dual RIC
800L RIC
1200L RIC
1400L RIC

Arabidopsis

Stainless steel shelves with glass covers and LED lights are available to order based on application and tier quantity requirements.

The 500L model provides a unique addition of LED wall plates, providing excellent uniformity via the vertical lighting.

Arabidopsis Models
240L RIC
480L RIC
500L RIC
600L RIC
700L Dual RIC
800L RIC
1200L RIC
1400L RIC

Germination

Stainless steel shelves with glass covers and LED lights are available to order based on application and tier quantity requirements.

The 500L model provides a unique addition of LED wall plates, providing excellent uniformity via the vertical lighting.

Germination Models
240L RIC
480L RIC
500L RIC
600L RIC
700L Dual RIC
800L RIC
1200L RIC
1400L RIC

# BIORA WALK-IN CHAMBERS
FEATURE 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	• Condensation free observation window	• USB data point
• Various sizes available, from 240-1400L	• Temperature sensor and controller	• Password protection
• Stainless steel wire trays	• Large working temperature range (lights on/ lights off)	• Multi-step programs
• Adaptable, multi-tier shelving	• Setting temperature accuracy 0.1°C	• Self-contained air-cooled condensing unit
• Standard lighting	• Forced air circulation	• Fully insulated doors
• LED Touchscreen HMI	• Primary, secondary and tertiary level alarms	

Optional Features

• CO2 monitoring and enrichment	• Connection via Internet to control the entire fleet available
• Adjustable lighting options	• Light data record
• Remote web-based chamber monitoring and control	• Up to 8 programs can be independently and repeatable for the whole schedule
• Additional temperature, humidity, or carbon dioxide sensors	• Security options available on request
• Humidity control with extensive working humidity range (lights on/ lights off)	• Direct connection with computer (PC) for monitoring and control available (LAN)
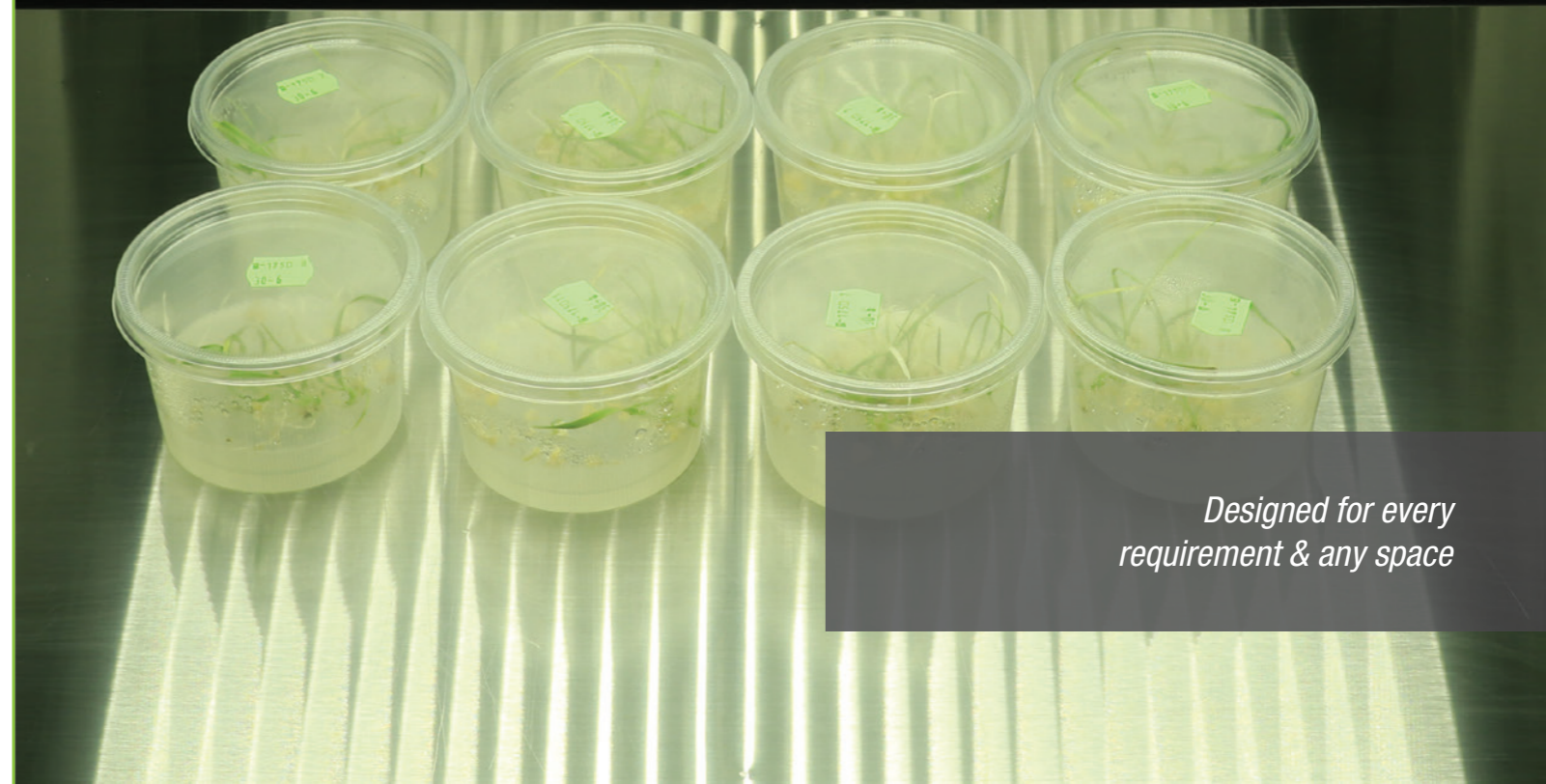
Designed for every requirement & any space

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