



DEFENCE & SECURITY

*Products for Land, Air &
Sea Applications*



B&R Enclosures

B&R Enclosures is proud to be an Australian family-owned and operated enclosure manufacturer and electrical equipment integration specialist, since 1955.

The proven supplier of electro-mechanical systems and assembly integration for BAE Systems, Boeing, L3 Harris, Luerssen, ThyssenKrupp, Naval Group, Thales, and the Australian Defence Force among others, B&R has long been a trusted partner in the supply chain of leading OEMs commissioning complex, innovative and tailored engineering and manufacturing enclosure solutions.

With half our business focussed on original equipment manufacturing, we produce high-quality products for repeatability, ensuring a consistency of supply with an average of 300 enclosures manufactured every weekday (6,000 per month/72,000 per year).

Complementing this, is our manufacturing customisation specialty, where we provide end-to-end design, manufacturing and equipment integration solutions for a range of sectors including Defence, Marine, Industrial, Data ICT, Hazardous Areas and Residential Commercial.

Some of our key customers and partners include:



Testing, Certifications & Accreditations

Physical and virtual simulation testing is conducted on our products.

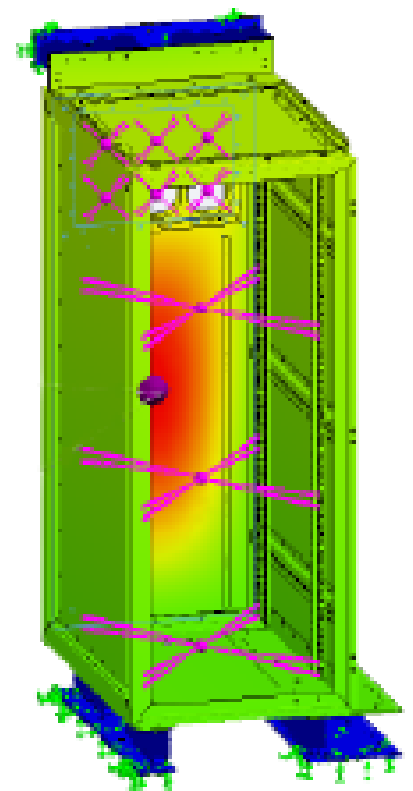
We rigorously test our products both in-house and at external third-party facilities. Tests can include shock, vibration, EMC, MIL STD, impact (IK), ingress protection (IP), type testing, static and seismic load, wind load, salt spray, surface finish and Factory Acceptance Testing.

We perform desktop simulation testing for Failure Modes and Effects Analysis (FMEA) – a systematic and proactive method for identifying where and how the product might fail and to assess the relative impact of different failures, in order to identify parts of the product which may need changing.

We also create and execute Inspection Test Plans (ITPs) which enable us to provide assurances to our customers regarding the quality and function of the product, certifying it has been achieved to their design specifications and application requirements. We provide completed ITPs to our customers in full transparency and in accordance with our quality control and documentation processes.

Our ITPs include a range of inspection sections for the product. ITP testing can include, but is not limited to:

- Mechanical
- Electrical Assembly
- Electrical Wiring
- Electrical Routine Testing
- Functional Test (LIVE) - referred to as Factory Acceptance Testing and has a separate testing procedure and verification document
- Final Inspection



Capabilities, Competencies & Certifications

We deliver manufacturing and electro-mechanical solutions that enable our clients to confidently execute their deliverables.

Australian Employer



We employ over 300 people throughout Australia

Manufacturing Locations



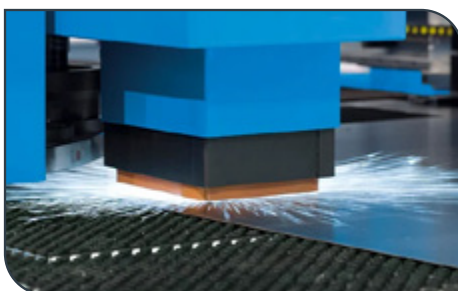
Brisbane - 18,000m²
Adelaide - 4,000m²
Sydney - 1,650m²

MANUFACTURING PROCESS



1. Shear Line

Coil steel cut to sheet sizes



2. Laser Punch

Supreme accuracy & repeatability



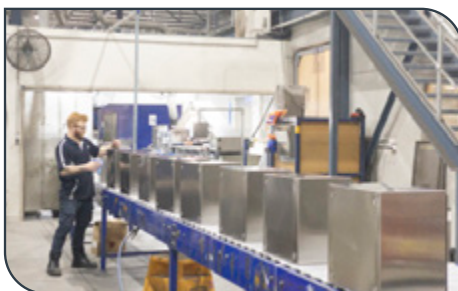
3. Bending

Automated bending & brake press



4. Fabrication

Manual and robotic laser welding



5. Finishing

Increased durability & resistance



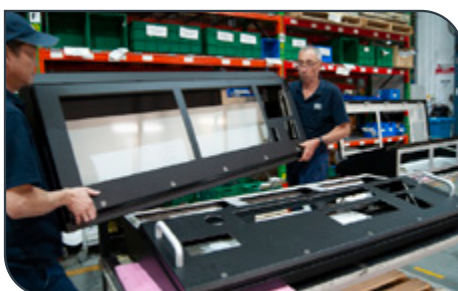
6. Painting

Five stage powder coating & optional chemical conversion



7. Gasket Assembly/ Preparation

Pour in place gasket for ultimate performance



8. Assembly

Scalable project assembly lines



9. Equipment Integration

Wiring of electrical components and technology equipment

B&R is certified and accredited to the following standards:



SECURITY CONSTRUCTION EQUIPMENT COMMITTEE

Products & Services

B&R offer a range of ruggedised engineered hardware and build-to-print solutions for Defence communication equipment and integrated platform systems.

Deployable Micro-DC



- Designed and purpose-built for Defence communications including on-base or deployed in-field in harsh operating environmental conditions.
- Modular frame easily accommodates split, dual or bridged backplanes.
- Flexible connector and network integration panels.
- Passive & active cooling with heat dissipation and anti-condensation.
- IEC & MIL-STD compliant.
- Telescopic shelf with cable arm.
- 19" rails with RU markings, PDU and fan unit.
- Lifting lugs and top entry gland plate.
- EMC vents.
- Manufactured from aluminium and 316 stainless steel.

Application Examples

- Fixed line radio link
- Commercial LTE
- SATCOM
- Configured for power distribution load centres

Engineered Hardware & System Support



Build To Print Solutions

- Detailed design and engineering of sheetmetal and CNC machined parts and assemblies.
- Full documentation and control.
- High volume specialists.
- Digital supply chain, Acceptance Testing and verification.
- Variety of material finishes and powdercoat colours are available.
- Materials include 316 stainless steel, marine grade aluminium and steel.

Project References

- Project Currawong
- Mobile Battlespace Communications
- HQOTM (Head Quarters On The Move)



Products & Services

B&R offer a range of security solutions including enclosures, racks and cages for protection of Data, ICT & CCTV equipment for land projects, Defence Force bases and barracks.

CCTV Enclosures



- Designed to keep electrical equipment protected from dust and water.
- Suitable for use in harsh outdoor environments.
- Can be tailored to suit exact customer requirements including lock options.
- COTS solution for a variety of sizes.
- Lloyd's Register certified.
- Available as powdercoated zinc coated steel, aluminium or 316 stainless steel.

Project References

- RAAF Base Amberley, QLD
- Gallipoli Barracks, QLD
- RAAF Base Williamtown, NSW
- HMAS Kuttabul, Garden Island, NSW

Secure Data Cages



- Designed to keep racks and equipment in defined zones, with a high level of security.
- Suitable for use in multiuser facilities such as co-location data centres, where cyber security is a priority.
- Can be tailored to suit exact customer requirements including underfloor caging.
- COTS solution for 2400mm and 2700mm cage heights, with customised panels available for other heights.
- Sliding or hinged doors in aluminium section for weight saving.
- Large open mesh pattern for maximum airflow and visibility.
- SCEC approved locks available or able to install a customer supplied locking mechanism.
- Onsite consultation and installation.
- Manufactured from zinc coated steel panels and powdercoated textured matt black.

Project References

- Garden Island, RAN Fleet Base East, NSW
- Your DC Data Centre, SA



Products & Services

B&R offer a range of security solutions including enclosures, racks and cages for protection of Data, ICT & CCTV equipment for land projects, Defence Force bases and barracks.

CQr - Secure Racking Cabinets



- Designed for Data & ICT applications where security is paramount.
- Suitable to be configured as either B or C Class cabinets with SCEC approval.
- All cabinets are fitted with three point locking; Class B have electronic combination and Class C uses bi-locks.
- Individually serialised.
- Fully adjustable 19" mounting rails.
- Multiple cable entry points top and base with cable baffles.
- Dedicated power entry.
- Front and rear doors with maximum area permissible as mesh (40%) for airflow.
- Manufactured from zinc coated steel and powdercoated textured matt black.



Unrivalled 1400kg distributed load capacity.



ORDERING GUIDE

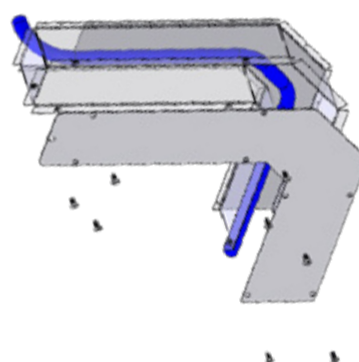
Height	Depth (mm)	Available Width		Cable Entries	
		600mm	800mm	600mm W	800mm W
12 RU	800	•		2	2
	1000	•			4
	1200	•			6
18 RU	800	•		2	2
	1000	•			4
	1200	•			6
27 RU	800	•	•	2	2
	1000	•	•		4
	1200	•	•		6
40 RU	800	•	•	2	2
	1000	•	•		4
	1200	•	•		6
42 RU	800	•	•	2	2
	1000	•	•		4
	1200	•	•		6
45 RU	800	•	•	2	2
	1000	•	•		4
	1200	•	•		6

Other sizes are available.

CABLE BAFFLE CAPACITY

	Diameter (mm)#	Saturation*	Cable Qty
Cat5e	5.6	80%	156
Cat6	6.3	80%	123
Cat6a	8.4	80%	70
Cat7	7.6	80%	85
Fibre	3	80%	542
Pwr 10A	7	20%	25
Pwr 15A	8.5	20%	17

These are nominal values for the OD of cable. Sizes vary by manufacturer. B&R does not accept liability for any errors. *Recommended maximum cable saturation.



Market leading, high capacity secure cable entry.

Products & Services

WE SET THE BENCHMARK FOR SCEC APPROVED DOOR VENTILATION

In many applications of mesh doors, the pressure loss through the door is one of the design considerations.

In most situations the air impact velocity on the door won't be much over 2.0m/s. As seen in the graph to the right, B&Rs SCEC approved 40% mesh doors will have a negligible pressure drop at these velocities.

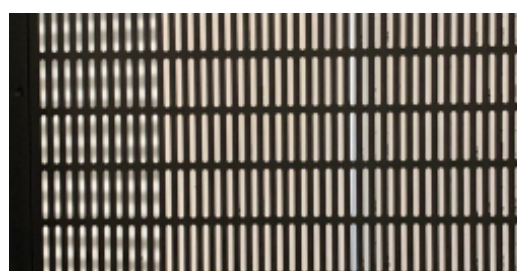
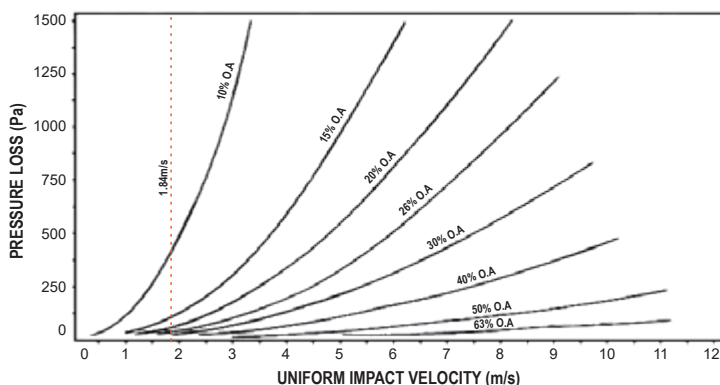
Most computer room air conditioners generate more than 20Pa of pressure, more than enough to overcome the pressure drop at the door in a containment situation.

For example; in a data centre environment, a 15kw heat load in a 45RU cabinet would require 3500m³/h of airflow. This is equivalent of a 1.84m/s impact velocity. In a containment situation with a positive aisle pressure this will be more than the pressure drop of the doors and the equipment will receive sufficient air flow.

40% mesh was developed as a cross over point of functional performance and higher security with SCEC approved product. B&R have the largest area of the doors available for airflow due to the smallest lock width approved.

Be confident in using a B&R Class C or B cabinet for your medium heat loads without the need for additional fan trays or active cooling.

Pressure Loss vs Impact Velocity For Various Open Area Perforated Plates
Source: Industrial Perforators Association (1993)



High flow ventilation mesh

DEFENCE PROJECTS FEATURING THE CQR

- Air 5431 Phase 2 & 3: Defence Air Traffic Management & Control System Facilities
RAAF Base Amberley, QLD
Army Aviation Centre Oakley, QLD
RAAF Base Pearce (WA)
- Gallipoli Barracks, QLD
- RAAF Base Williamtown, NSW
- Air 5349 Phase 3 (Growler)
- Battlefield Airlifter Phase 2, C & D
- Jindalee Operational Radar Network

S.C.E.C. CERTIFICATES OF APPROVAL

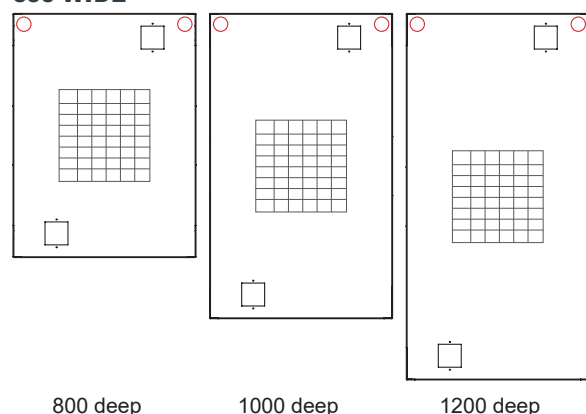


TECHNICAL DRAWINGS - TOP OF CABINET

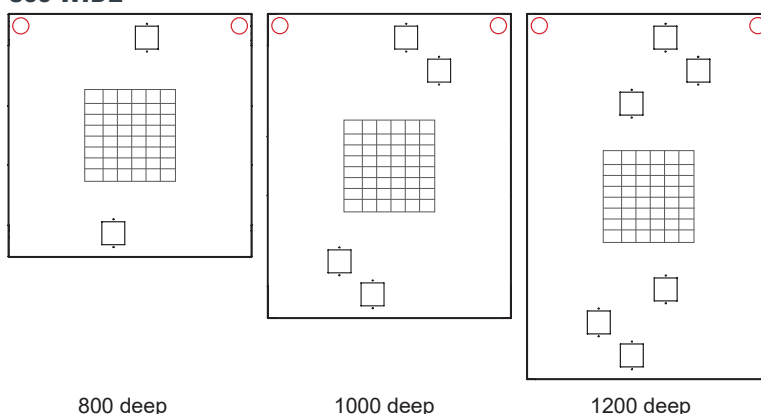
□ Cable entry points with cable baffles

○ Dedicated power entry points - 32mm (optional)

600 WIDE



800 WIDE



Products & Services

B&R offer a range of cabinets and consoles for protection of data and communication equipment and integrated platform systems.

Platform Systems Console



- Designed and purpose built to support a diverse range of Defence platform systems.
- Designed collaboratively with Primes and System Integrators, to provide solutions that meet specific project demands.
- Designed with total TLS (through life support) in mind and a lower cost of ownership by offering a modular design, suitable for technology and equipment advancements and obsolescence.
- Ergonomic human factor design using lightweight construction materials.
- Modular form factor allows upgrades by individual modules as needed.
- Certified EMC protection to MIL-STD's.
- Vibration and Shock Certified.

Project References

- Arafura Class (OPV)
- Damen RoPax



Marine 19" Rack Cabinets



- Designed and purpose built specifically for Naval Maritime applications.
- Tested and certified to MIL-STD's for vibration and EMC.
- Configurable sizes (14RU - 39RU) supplied with or without isolator mounts.
- Ability to bay cabinets together in multi-rack configurations.
- Includes thermal management fans with running life of over 37,000 hours at 40°C.
- Customisable to specific requirements.
- Polyester powdercoated finish.

Project References

- Arafura Class (OPV)



Products & Services

The Connector TE and Universal NI range of COTS and MOTS products are suitable for junction boxes and control panels in all environments.

Universal NI



- Designed to house electrical controls and instrumentation, junction terminations and PLC's.
- Suitable for use in marine and other harsh outdoor environments with IP66 protection.
- Reversible door opening to 120° provides easy access to internal mounting pan.
- Can be wall mounted with brackets or a mounting flange kit - no drill holes needed.
- Flat face gutter ensures a reliable and long-lasting seal no matter the environment.
- Modifications include viewing window, vents, different lock options and rainhood.
- Lloyd's Register certified.
- Available as powdercoated zinc coated steel, aluminium or 316 stainless steel.

Project References

- Arafura Class (OPV)
- ANZAC Class (FFH)
- Canberra Class (LHD)
- Supply Class (AOR)

Connector TE



- Designed to house terminations, pushbuttons or switchgear.
- Suitable for use in marine and other harsh outdoor environments with IP66 protection.
- Mount equipment inside using a mounting pan or DIN rail.
- Can be wall mounted with brackets or mounting flanges already attached.
- Flat face gutter ensures a reliable and long-lasting seal no matter the environment.
- Lloyd's Register certified.
- Available as powdercoated zinc coated steel, aluminium or 316 stainless steel.

Project References

- Arafura Class (OPV)
- ANZAC Class (FFH)
- Canberra Class (LHD)
- Supply Class (AOR)



Case Studies

Project Currawong

The Currawong Battlespace Communications program is for the Army and elements of the RAAF and Navy to replace their ageing mobile communications and computer networks, and to provide improved situational awareness, command and control, and information sharing capabilities.

Prior to the IOC stage B&R Enclosures was involved in prototyping ruggedised hardware for communication equipment through Boeing Defence Australia.

Once the program was approved for full roll out, Boeing again contracted B&R to design and manufacture critical brackets for use in the high capacity line-of-sight (HCLOS) radio and video-conferencing equipment.

The first order for the program was received in late 2018 and since then B&R have received additional orders and continued to manufacture and supply Boeing Defence with hundreds of brackets ready to be integrated into the system hardware and deployed through the ADF.



Advanced SGSI System

Navantia Australia has successfully completed a major design update for the Royal Australian Navy's Canberra Class LHDs, installing an Advanced Stabilised Glide Slope Indicator (ASGSI).

A consortium of Navy, CASG, Naval Ship Management, Owen International, AGI and Navantia Australia collaboratively worked through an engineering change to install the new Advanced SGSI system in a very tight time frame, which has restored the capability and reliability.

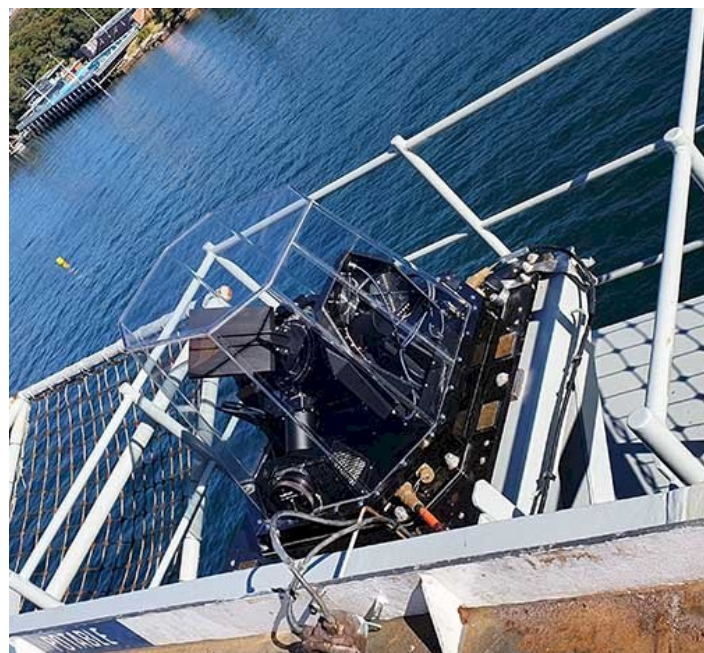
The system is a critical piece of equipment on the deck of the ship, used to guide helicopters to land in the designated area of the ship while it is moving.

As the installation of the ASGSI system needed electrical enclosures which were robust enough for an open deck maritime application, B&R Enclosures was approached to assist. Our range of enclosure solutions and quality of construction and materials were just one of the reasons for this.

B&R manufactured enclosures using 316 stainless steel to prevent corrosion from salt water, while also achieving an IP66 rating to prevent ingress of dust and more importantly water.

Navantia Australia performed all of the platform integration design necessary to integrate the ASGSI into the Canberra Class LHD design.

The Forward ASGSI system is now fully installed on both HMA Ships Canberra and Adelaide and was recently used to support the First of Class Flight Trials for the MH60R helicopters.



Case Studies

Offshore Patrol Vessels

This project required a 19" cabinet solution to protect and house data and communications equipment as well as a communications bridge console for on-board the SEA 1180 Arafura Class Offshore Patrol Vessel (OPV).

Commissioned in 2018, B&R collaborated with L3 Harris, Thales and EM Solutions to design and engineer a solution to meet the requirements of Luerssen and the Commonwealth of Australia.

Both the 19" cabinet and the bridge console products needed to be certified for EMC and vibration MIL-STD's.

A 6 month pre-manufacturing desk-top study completed by B&R, took into account the needs and challenges of the project and produced simulated models, that could be viewed and approved virtually, without the need for a prototype.

Final production of the full order of cabinets and consoles for each of the OPV's resulted in a solution which was 100% fit for purpose and compliant to project requirements.

B&R has been formally acknowledged by the shipbuilder Luerssen, for the participation in delivering robustly engineered and constructed solutions.

EM Solutions - Cobra System

EM Solutions first visited B&R's head office and main manufacturing facilities during an AIDN Event hosted by B&R. During this event B&R was able to showcase our extensive manufacturing knowledge along with our capabilities for the Defence industry.

As part of the SEA 1180 program B&R was chosen to provide the 19" cabinets for the on-board communication system equipment. This is when EM Solutions first collaborated with B&R Enclosures.

From here, engineers from B&R and EM Solutions visited each other's premises to learn more and understand how we could support, collaborate and innovate together to deliver premier engineered solutions and broaden our sovereign Defence industry capability.

EM Solutions delivered on SEA 1180 using the B&R 19" marine cabinet and acknowledged the success of the burgeoning strategic relationship.

The relationship has continued to grow with EM Solutions ordering the 19" marine cabinets from B&R to provide a turn-key solution for their Cobra SOTM system as part of both sovereign and export programs.

The Cobra has multiple band resiliency in a single package and can cover both commercial and military Ka-bands, as well as X-band simultaneously.

B&R will continue to work with EM Solutions to grow Australia's Defence industry capabilities.

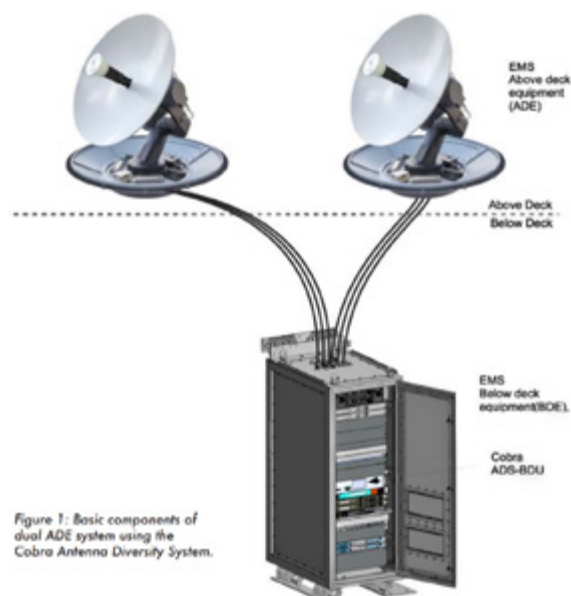


Figure 1: Basic components of dual ADE system using the Cobra Antenna Diversity System.

Figure 1 © Copyright Dr Rowan Gilmore, CEO - EM Solutions

Locations

AUSTRALIA

Sales

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brenclosures.com.au

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Sales & Warehouse
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Browns Plains BC QLD 4118
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Garbutt QLD 4814
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E: salestvl@brenclosures.com.au

NEW SOUTH WALES

NSW & ACT Sales & Warehouse
7 Metters Place
Wetherill Park NSW 2164
T: +61 2 9915 9555
E: salesnsw@brenclosures.com.au

NEWCASTLE Distribution

Ross Joice Agencies Pty Ltd
109-111 Broadmeadow Road
Broadmeadow NSW 2292
T: +61 2 4961 4433

AUSTRALIA

VICTORIA

VIC & TAS Sales & Warehouse
50-52 Sunmore Close
Heatherton VIC 3202
T: +61 3 9552 0552
E: salesvic@brenclosures.com.au

TASMANIA Distribution

W P Martin Pty Ltd
85 Elizabeth Street
Launceston TAS 7250
T: +61 3 6331 5545

SOUTH AUSTRALIA

SA & NT Manufacturing,
Sales & Warehouse
505 Grand Junction Road
Wingfield SA 5013
T: +61 8 8417 6222
E: salessa@brenclosures.com.au

NORTHERN TERRITORY Distribution

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Cnr Hidden Valley & Beaton Roads
Berrimah NT 0828
T: +61 8 8947 0870

WESTERN AUSTRALIA

WA Sales Office & Warehouse
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