



FLASHBUTT AND
ALUMINOTHERMIC WELDING

CAPABILITY STATEMENT



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Cat5 Rail, a wholly Australian-owned and operated enterprise, was founded in 2009 in the Northwest of Australia by its current owner and Managing Director, Sam Sycamore. Specialising in construction of Lump Sum Rail Contracts, Rail Recruitment, and Managed Labour Services, Cat5 Rail offers tailored solutions to a diverse array of domestic and international clients.

Our business model is centered around supporting its projects throughout Australia and New Zealand, with a mobile workforce of over 1650 field employees and more than 180 dedicated professionals and an extensive portfolio of rail assets, Cat5 Rail has established itself as a reliable presence in both urban and remote areas. The company prioritises sustainability, fostering lasting opportunities for clients and employees alike.

We are an employer of choice, with over 35% of our workforce having worked for us for more than 3 years. We pride ourselves on a diverse workforce and culture with a 46% female participation rate.

At Cat5 Rail, there's a prevailing culture of a proactive can-do attitude and a collaborative approach to partnering with clients. Together, we strive to identify solutions that not only provide the best value for money but also ensure safety and uphold the highest standards of quality in execution.

Our Capabilities

- Track maintenance and construction
- Specialist Rail Plant and Equipment hire (Hi-Rail Excavators and Mobile Flashbutt Welders)
- Overhead wiring maintenance and construction
- Rail Safeworking
- Rail/Civil/Alignment Design/Engineering Surveying
- Nationally Accredited Rail Infrastructure Training



10

Offices across
Australia/NZ



3

Workshops across
Australia



195

Staff Employees



1650

Wages Employees

ABOUT THE
COMPANY



28,813

2021 TO DATE WELDS

SIGNIFICANT PROJECTS

 **Fortescue**  **7,934 Welds**

2023- 2025
Location: Pilbara, Western Australia

 **BHP**  **7,328 Welds**

2023-2025
Location: Pilbara, Western Australia

 **NEWest Alliance**  **3,825 Welds**

2023 - 2025
Location: Perth Metro, Western Australia

 **Rhomberg Sersa**  **4,323 Welds**

2024 - 2025
Location: Sydney, New South Wales

 **Inland Rail**  **3,748 Welds**

2021 - 2023
Moree, New South Wales

 **Armadale Line Upgrade Alliance**  **1,120 Welds**

2024 - 2024
Location: Perth Metro, Western Australia

 **Tram Grade Separation Projects Alliance**  **535 Welds**

2025
Location: Adelaide, South Australia

 **Rio Tinto - Weipa**  **182 Welds**

2025
Location: Weipa, Queensland



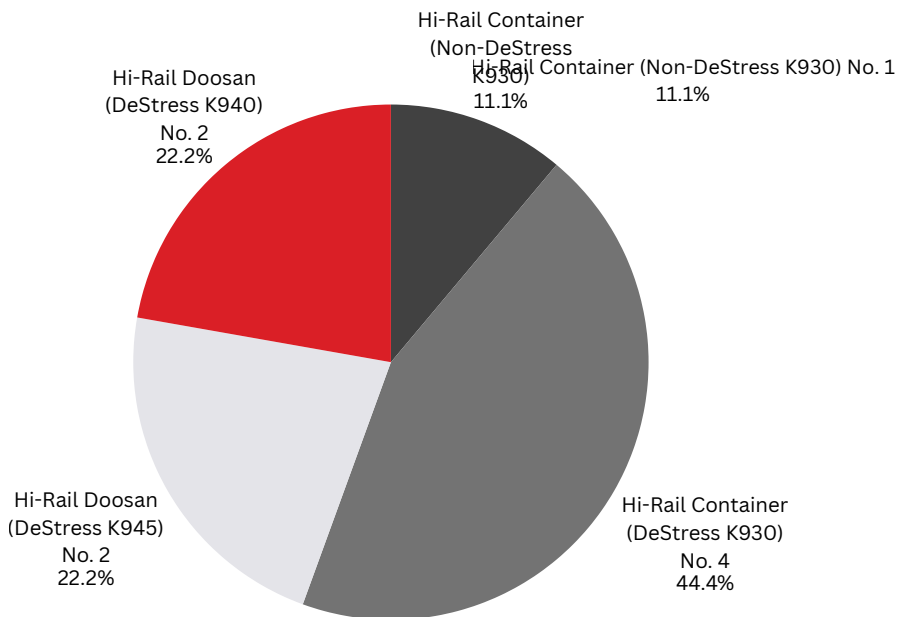
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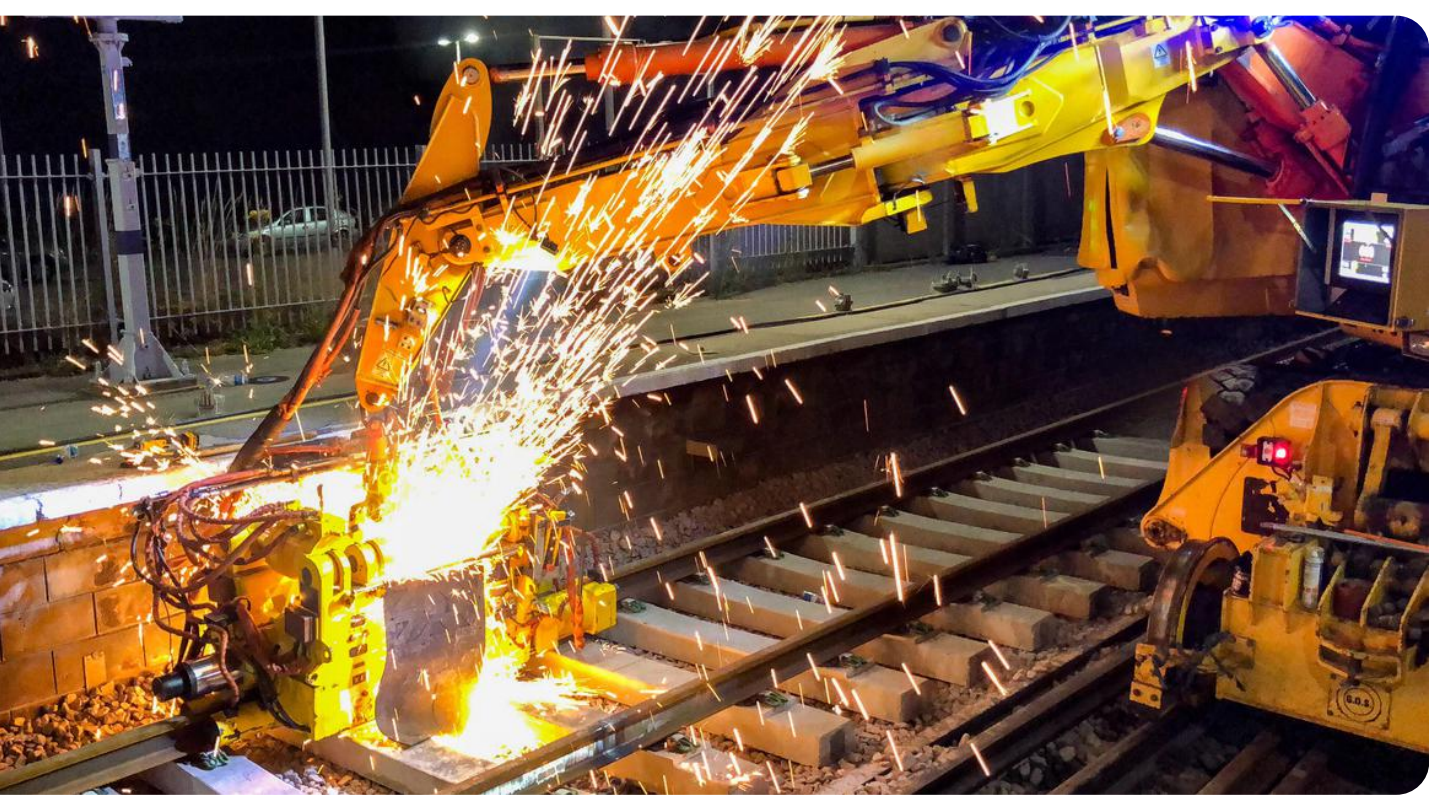
The Cat 5 Rail Flashbutt Fleet offers unparalleled welding capabilities and are fully factory supported, ensuring precision, efficiency, and reliability for any rail construction and maintenance projects.

Our Flashbutt Fleet, is one the largest in Australia, comprising of nine machines tailored to meet diverse welding requirements:

OUR
FLEET



FLASHBUTT AND ALUMINOTHERMIC WELDING CAPABILITY STATEMENT



Advantages:

Ability to weld in harder to reach access points, easily maneuverable with great access.

Applications:

Used in all maintenance welding areas, with increased capability in narrow access area including yards.

Specifications:

- Doosan ZX170W – RW930 welder – all terrain welder capable of 8 welds per hour
- ATMW (All Terrain Mobile Welder) Flash Butt Rail Welder Model RW30 is a ready for service, in track condition rail welding system.
- System mounted on DOOSAN DX170W (or similar) excavator equipped with High rail system designed and manufactured by GOS Tools and Engineering Services Ltd (UK).
- Unit is designed to run with high flash point fluid, all cables and hoses are fitted with fire proof shields.
- The system is complete with diesel engine generator set and internal cooling system.
- An electronic control system is designed to provide a stable welding process according to preset parameters and provide high quality of welding joints.
- Hydraulic power provided by excavators main pump station.
- Engine driven pumps provide power for the excavator and welder oil circuits.
- Oil cooling system is integrated with original excavator design.
- Equipment primarily intended for use on rail infrastructure (construction and maintenance purposes), the machine is specifically designed and built as a mobile welding machine.
- Where permitted/certified, towing of loads is permitted and an automatic hydraulic and air trailer park braking systems, suitable for use with GOS T Series Rail Trailers, is provided at both ends of the excavator.
- New generation of RW50 machines equipped with advanced force discharge hydraulic accumulator system that sufficiently increase upset speed, which is crucial feature for modern steel material

ALL TERRAIN MOBILE
WELDER



FLASHBUTT AND ALUMINOTHERMIC WELDING CAPABILITY STATEMENT



Advantages:

Self-contained and fully enclosed designed for high production welding, able to be used on track and off the functionality and weld rate of this style of machine is greatly increased due to the addition of a chiller unit allowing the machine to weld up to 16 welds per hour with no adverse effects on welding, high output pumps allow this to be a great choice for destress.

Applications:

production welding, destress and all maintenance activities.

Specifications:

- MAN 400 Hi-Rail capable - RW930 Welder fully containerised unit- Capable of 12 welds per hour
- Our Container Welders are a self-contained, fully enclosed, ready for service, in track or static condition rail welding system designed for welding short rails (18-25m) into string or continuously welded rail track.
- This equipment is able to produce welding with REGULAR or PULSE processing of different rail profiles and metallurgies up to 12,000 sq.mm in fully automatic welding cycle. This is dependent on the welding head model Container Welder having the ability to produce destress welding or join unlimited length of welding string.
- All welders equipped with unique active force discharge hydraulic accumulator system providing benefits on welding of modern steels.

CONTAINERISED
WELDER



FLASHBUTT AND ALUMINOTHERMIC WELDING CAPABILITY STATEMENT



Why is Cat5 your best provider for Flashbutt Welding?

- We have the largest privately owned Fleet in Australia with a total of nine Flashbutt welders
- We are supported by our Australia wide network
- We have the most technologically advanced equipment on the market that has the ability to:
 - Real Time Weld data Analysis
 - Remote Access to welders
 - Reporting
- Direct Support from Manufacturer
- Extensive stores of critical spares
- Team of expert Trades People supporting machines
- Flashbutt Welders – Trained and VOC'd
- Support Equipment – Prime Mover with 50t Float, Manhaul Gang Truck, Service Vehicles and Welding Utes with specialist equipment

WHY SHOULD YOU CHOOSE
CAT5 RAIL





What are the benefits?

Flashbutt rail welding and Alumothermic welding are both widely used methods for joining rail, each with its own set of advantages and disadvantages. Flashbutt rail welding is often considered superior to Alumothermic welding:

Mechanical Properties

Flashbutt welding or resistance welding typically results in a stronger joint compared to Alumothermic welding. The process involves heating the rail ends to a high temperature and then forging them together under high pressure. This results in a metallurgical bond that maintains the mechanical properties of the rail, such as tensile strength and fatigue resistance, across the weld.

Quality Control

Flashbutt welding offers better control over the welding process and parameters, leading to more consistent and reliable welds. The process is highly automated and can be precisely controlled, ensuring uniformity in weld quality and integrity. Utilising state of the art technology this information can be carefully analysed and amended to suit the rail network owner's specific requirements,

Speed and Efficiency

Flashbutt welding is generally faster than Alumothermic welding, especially for longer rail sections. The automated nature of flashbutt welding allows for rapid joining of rail segments without the need for preheating or extensive post-welding processing. This is delivered in a standalone unit either truck mounted or excavator mounted in a highly repeatable process.

WHAT IS FLASHBUTT
WELDING?





Less Heat Affected Zone (HAZ)

Flashbutt welding produces a smaller heat-affected zone compared to alumothermic welding. This minimizes the risk of introducing residual stresses and structural weaknesses into the rail, resulting in a more durable and reliable joint over the long term.

Environmental Impact

Flashbutt welding typically consumes less energy and produces fewer emissions compared to Alumothermic welding. This makes it a more environmentally friendly option, particularly in terms of reducing carbon footprint and overall environmental impact.

Cost-effectiveness

While the initial equipment cost for flashbutt welding may be higher than that for Alumothermic welding, the overall cost of ownership can be lower due to higher productivity, lower scrap rates, and reduced maintenance requirements.

Suitability for High-Speed and Heavy Haul Rail

Flashbutt welding is often preferred for high-speed rail applications due to its superior mechanical properties and reliability. The strong, consistent welds produced by flashbutt welding are better able to withstand the dynamic forces and stresses experienced by high-speed/heavy haul trains, ensuring safe and smooth operation.

WHAT IS FLASHBUTT
WELDING?



FLASHBUTT AND ALUMINOTHERMIC WELDING CAPABILITY STATEMENT



Cat5 Rail specialises in both Flashbutt and Aluminothermic rail welding. Our extensive knowledge in the complex fields of aluminothermic welding, flashbutt welding, destress welding, adjust rail, frog maintenance, turnout welding, rail closures, IRJ installs, rail grinding, and defect welding is widely respected.

Our extensive people resources include:

- Superintendents
- Engineers
- Weld Supervisors & Leading Hands
- Flashbutt Welders/Technicians
- Aluminothermic Welders
- Frog Maintenance/Turnout Welders
- Welding Offsiders
- Mechanical & Electrical Tradespeople
- Quality Assurance Officers

Cat5 Rail provides total peace of mind that works will be delivered safely and efficiently, with comprehensive plant and equipment ready to service your requirements across Australia and New Zealand.

Applications of Flashbutt welding:

- Installation of new track
- Re-Rail
- Destress
- Defect removal
- Fixed line welding or production welding
- In-track welding

SERVICES RAIL WELDING



WORKSHOP **CAPABILITIES**

At Cat5 Rail, we pride ourselves on providing comprehensive servicing and maintenance solutions tailored to the needs of our clients.

With a dedicated maintenance team and experienced in-field fitters, we specialize in servicing and maintaining a wide range of equipment, from light vehicles to excavator and truck mounted containerised flashbutt welders.



PORT HEDLAND WORKSHOP

- Major and Minor Servicing
- Flashbutt Maintenance and Machine Repairs
- Weld Head Rebuilds
- Power Generation Repairs
- Control System Repairs



PERTH WORKSHOP

- Major and Minor Servicing
- Flashbutt Maintenance and Machine Repairs
- Weld Head Rebuilds
- Power Generation Repairs
- Control System Repairs



SYDNEY WORKSHOP

- FBW
- AT Welding
- Rerailing
- Level Crossing Renewals
- Undercutting
- Culvert Refurb's
- NDT Testing
- Track Certification
- Drainage Works
- Turnout Construction
- Slab Track



BRISBANE WORKSHOP

- FBW
- AT Welding
- Rerailing
- Level Crossing Renewals
- Undercutting
- Culvert Refurb's
- NDT Testing
- Track Certification
- Drainage Works
- Turnout Construction
- Slab Track

Key Differentiators:

- **Dedicated Maintenance Team:** Our team of experienced professionals is committed to delivering exceptional service and support.
- **In-field Fitters:** With in-field fitters available, we can provide on-site servicing and repairs, minimizing disruptions to your operations.
- **Comprehensive Capabilities:** From routine maintenance to complex repairs, we offer a comprehensive range of services to meet all your needs.





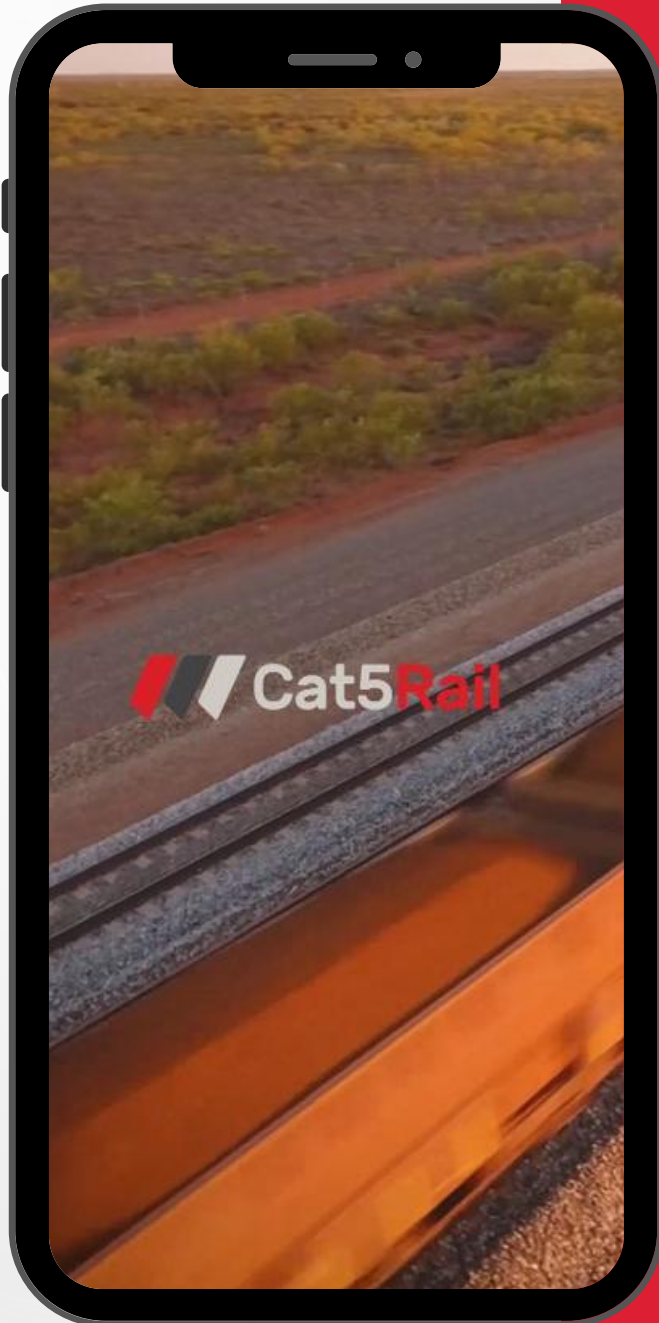
 Cat5Rail

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We would love to
hear from you.
Please call one of
our friendly staff
today.

VISIT US



www.catfive.com.au

