



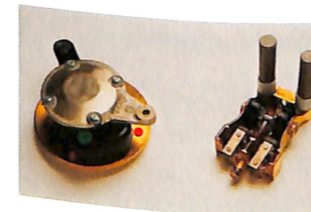
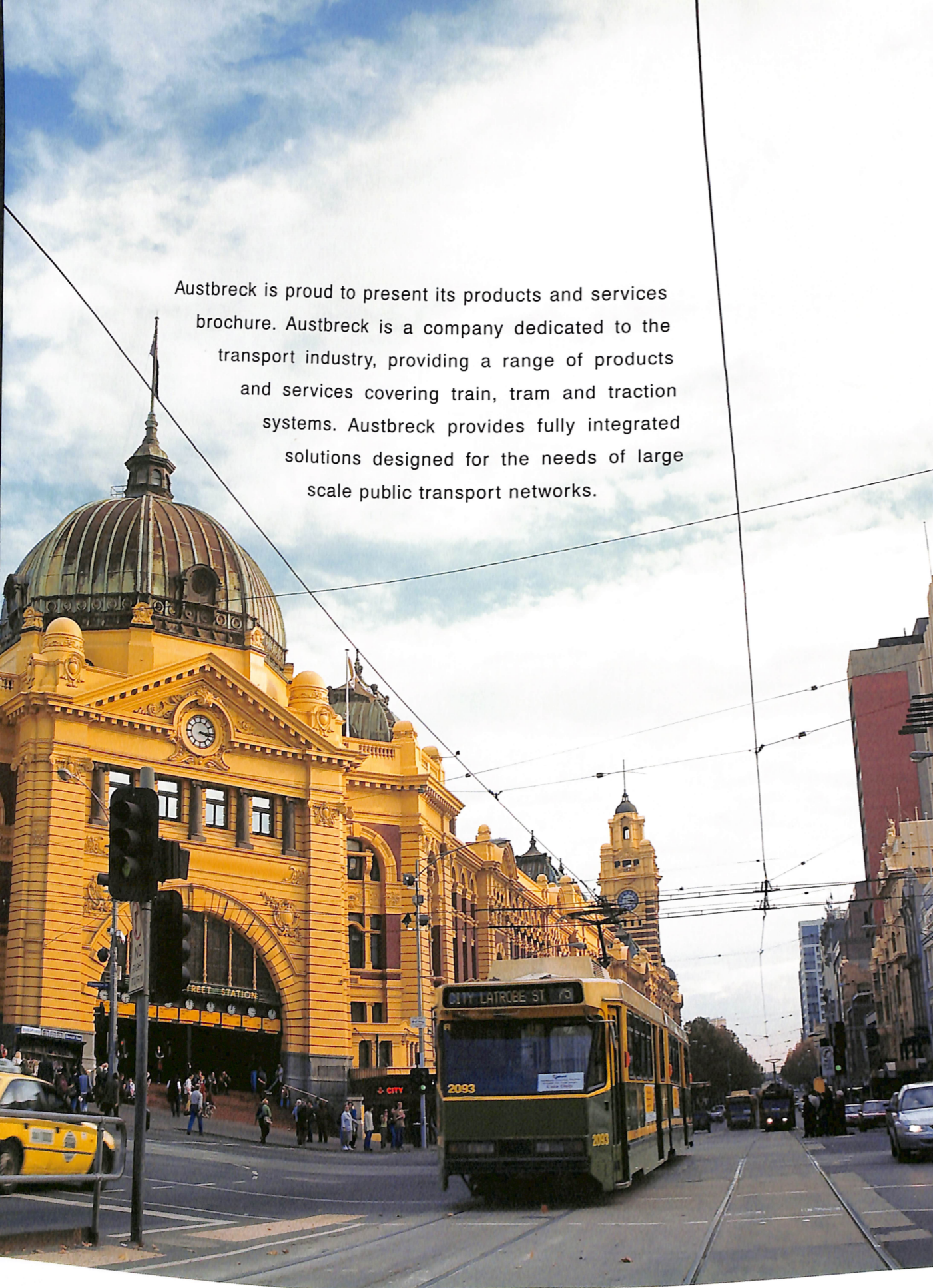
AUSTBRECK

A Member of the Fandstan Electric Group



Table of Contents

Austbreck is proud to present its products and services brochure. Austbreck is a company dedicated to the transport industry, providing a range of products and services covering train, tram and traction systems. Austbreck provides fully integrated solutions designed for the needs of large scale public transport networks.



2

Austbreck Overview

Austbreck's quality system is certified by the National Association of Testing Authorities (NATA) which in return provides total quality in design, equipment and services for trains, trams and all types of traction systems.

4

Pantographs

Austbreck offers a complete range of pantographs ranging from light rail (1.5kv) to Very Fast Train (VFT) (25kv) applications, all fully designed and engineered to the customers exacting standards and safety requirements.

6

Tram Systems

Austbreck provides a complete range of products and services for overhead traction systems for trams and light rail. From the ground up, including poles, bonding conductors, span systems, parafil systems, pendulum systems, with all the necessary mounting and insulating components.

9

Train Systems

Austbreck provides a complete range of products and services for overhead traction systems for train systems, which includes design and installation of overhead catenary systems extensions, siding. Also supplying overhead traction componentry eg. section insulators, dropper clamps.

13

Traction Systems

Austbreck's product range for trains, trams and cranes includes boom heads, trolley boom assemblies, carbon brush holders and earthing contacts.

15

Design Capabilities

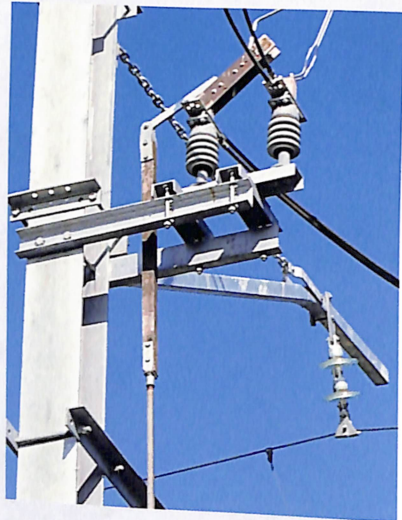
A fully qualified and experienced team of engineers, which is dedicated to providing cost effective solutions, the latest technology and the best design available to suit the project specifications.



AUSTBRECK

A Member of the Fandstan Electric Group

Austbreck Overview



Austbreck is a specialist manufacturing company dedicated to current collection equipment for mass transit and industrial applications. Our design, supply, refurbishment service covers the following main areas:

- Pantographs
- Overhead Systems for Train and Tram
- Overhead Traction Systems for Mining
- Track Design
- Industrial Conductor Systems
- Overhead Traction System Components

Group Resources

- Consultant Engineers for overhead traction systems
- Overhead system designers and manufacturers
- Installation specialists
- 3rd rail systems - design, manufacture and supply
- Brushholders - design, manufacture and supply
- Specialists in all types of pantographs
- Project Management
- Overhead traction systems for the mining industry
- Manufacturers of GRP composites
- Electrical power management systems for both data and power distribution systems



Corporate office located at Hallam, Victoria.



Corporate Profile

The Fandstan Electric Group was formed in 1979 following the acquisition of Stemmann Technik GmbH - Germany and TransTech of South Carolina Inc. - USA. Until 1979, Fandstan Electric Group comprised Brecknell Willis & Co, Austbreck Pty Ltd and 50% of Stemmann Technik GmbH and Strachan & Fox Pty Ltd (now Brecknell Willis Composites).

Austbreck Pty. Ltd., was formed in Australia in the late 1970's when Brecknell Willis was the successful tenderer for the design, manufacture and supply of pantographs for Melbourne's new fleet of trains.

Since those early days Austbreck has supplied pantographs for train applications in New South Wales, Queensland, Western Australia and New Zealand. Austbreck's pantographs are also designed, manufactured and supplied for light rail applications, for example, Melbourne's tram fleet, Sydney's new light rail tram fleet, the Adelaide-Glenelg Tramway and recently, pantographs for use in the underground mining industry.

Since the mid 1980's, Austbreck's scope broadened with much component and system knowledge being built up on equipment requirements for both heavy and light rail overhead infrastructure. A complete range of products and systems are offered, comprising of Australian made and imported components for overhead fittings and fixtures. Austbreck manufactures and supplies a large range of products which include, section isolators, neutral sections, feeder ears, clips, frogs, crossings, steel brackets poles and fixtures for rail/tram applications.

Austbreck has been able to provide a product design capability for the rail industry. Evidenced by the development of the train/tram crossing, (peculiar to Melbourne), and development of a replacement pantograph for Melbourne's train fleet (converting the fleet from copper collector pantograph heads to carbon collector pantograph heads).



Pantographs

The pantograph is a mechanism, which connects the current from the overhead wire. The pantograph uses a folding mechanism to achieve constant wire force on the carbon strip mounted on the panhead assembly. The panhead travels in the vertical plane to follow the contact wire height above the rail. Current is collected by the carbon strip and is carried through the structure to a power take off from where cables take the current to the trains electric.



Train pantographs

Austbreck has made a particular impact with its development in train borne equipment such as pantographs.

Austbreck offers a complete range of pantographs from 1.5kV to 25kV systems for the mining industries through to fast train systems capable of speeds in excess of 300kmh and is designed to compliment the aesthetics of the vehicle.

Our pantograph design incorporates many important features - lightweight design, the best available materials, latest pantograph technology, critical safety componentry and entanglement prevention design features. Our pantographs are emission free and ozone friendly.

Low maintenance ensures very efficient operation which place Austbreck as leader in this class of manufacture throughout the world.



Tram pantographs

The Melbourne metropolitan tram fleet exclusively utilises the Austbreck pantograph to collect power from the overhead to the trams electric.

Austbreck were the successful contractor when these trams were built sighting superior design and safety, spare part support and proudly designed and manufactured in Australia.

Pantograph maintenance

Being the Original Equipment Manufacturer, Austbreck offers the rail and tram transport companies various overhaul packages. The key factors in offering these services are:

- Maintaining pantographs to OEM standards
- Fully trained pantograph technicians
- Only OEM parts used
- Maintenance packages designed to customers requirements
- Complete warrantee on workmanship

Austbreck's manufacturing and overhaul centre is fully NATA Quality accredited and all components are manufactured or overhauled in the appropriate jiggging and fixtures maintaining conformity. Austbreck can structure overhaul packages that take all the worry, downtime loss and productivity loss out of what can be a logistical nightmare. We tailor our overhaul packages to fully satisfy all the customer's requirements.



Sydney Light Rail

Utilising the Austbreck pantograph to collect its power. The pantograph integrates effectively to enhance the trams aesthetics and performance.





Tram Systems

With Austbreck being dedicated to developing and maintaining tram systems for optimum performance we are able to focus and plan ahead for the markets need.

Austbreck prides itself on Safety, Quality, Efficiency and Performance, these factors which are critical requirements in today's tram systems. These attributes are testament to Austbreck's success in many major projects around Australia.



Intersection installation

This illustration is a busy metropolitan tram crossing showing all overhead componentry, designed, manufactured and serviced by Austbreck.



Trolley wire installation

A typical traction system network designed and installed by Austbreck.



Pendulum system installation

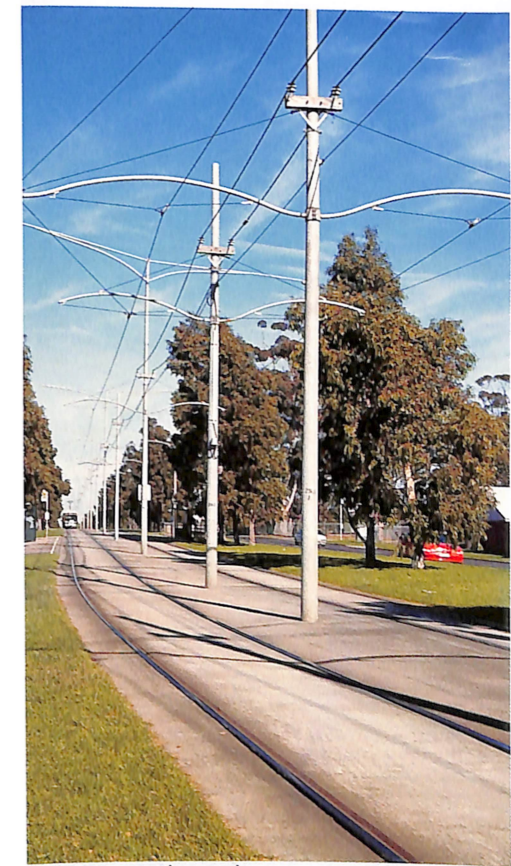
Above is a double pendulum system which is used in dual running Overhead traction System. It has replaced conventional Ear and Hanger Systems with advantages of a floating form of trolley wire suspension instead of the rigid Ear and Hanger System.



Historic pole reproduction

Pole installations

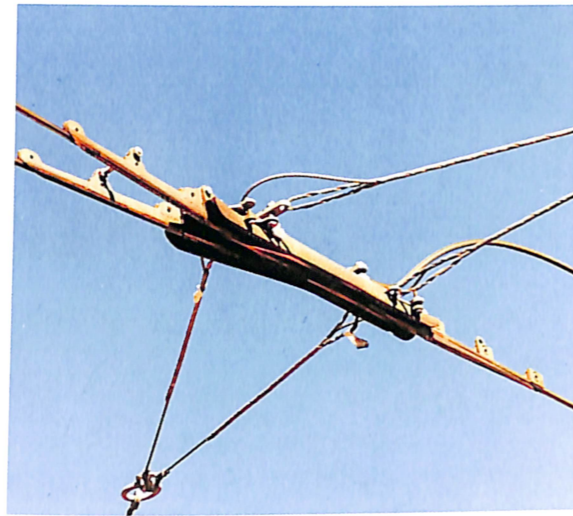
New Generation poles which are designed and engineered to customers specific requirements.



New generation pole



Train Systems



Change of direction installation

Austbreck manufactures a component called a FROG for the overhead traction system which guides the direction of the overhead, trolley pole and wire. These are made in left and right configurations. Their unique shape and resemblance to a frogs foot, hence their name.

Austbreck engineers have been developing, planning and building overhead traction systems for urban transport for many years and are aware of the ever increasing demands for modern day overhead systems. This is an added bonus which allows us to guarantee our customers receive both cost effective and technically optimal solutions to all their requirements regarding overhead traction systems.

Parafil system installation

Austbreck supplies parafil systems which is fully insulated, while relatively expensive to a conventional system. This eliminates the need for ceramic insulator systems which can slip or break leading to costly system repairs and down time running.

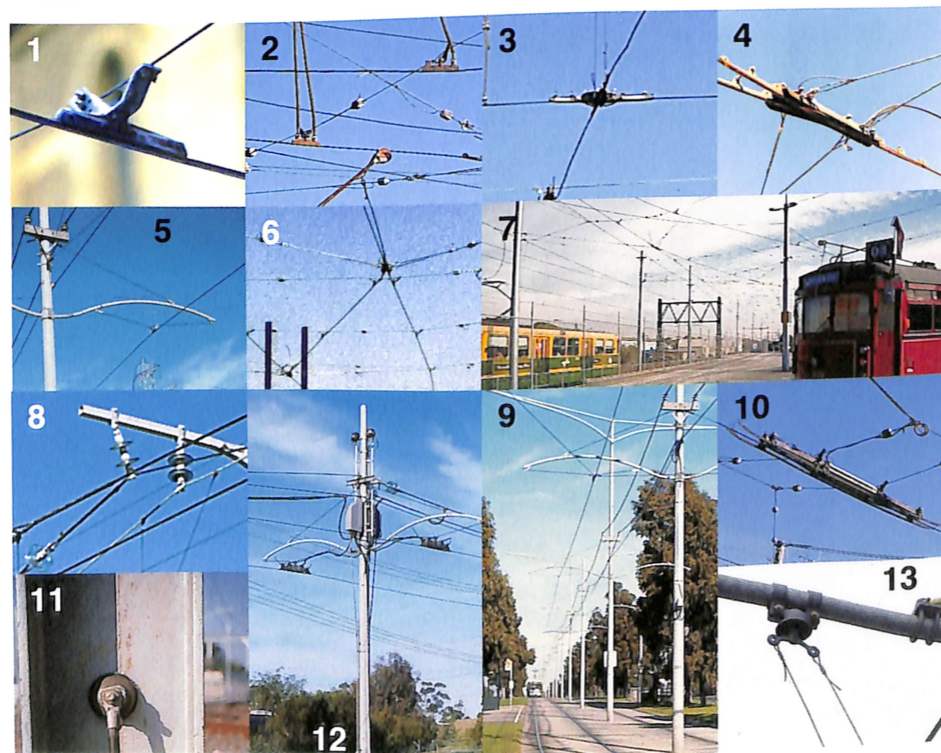


Overhead structure portal

Austbreck has successfully tendered for the design and installation of many projects such as train station upgrades, train overhead refurbishments and train holding portals.

Tram Components

- 1 Line ears and hanger assembly
- 2 Feed ears
- 3 Varying degree crossings
- 4 Frogs
- 5 Parafil rope and termination
- 6 Span wire
- 7 Trolley wire
- 8 Insulators
- 9 Steelware and poles
- 10 Line contactors
- 11 Bonding conductors and electrolysis equipment
- 12 Power switching and control cabling
- 13 Pendulum system



Train/Tram Crossing

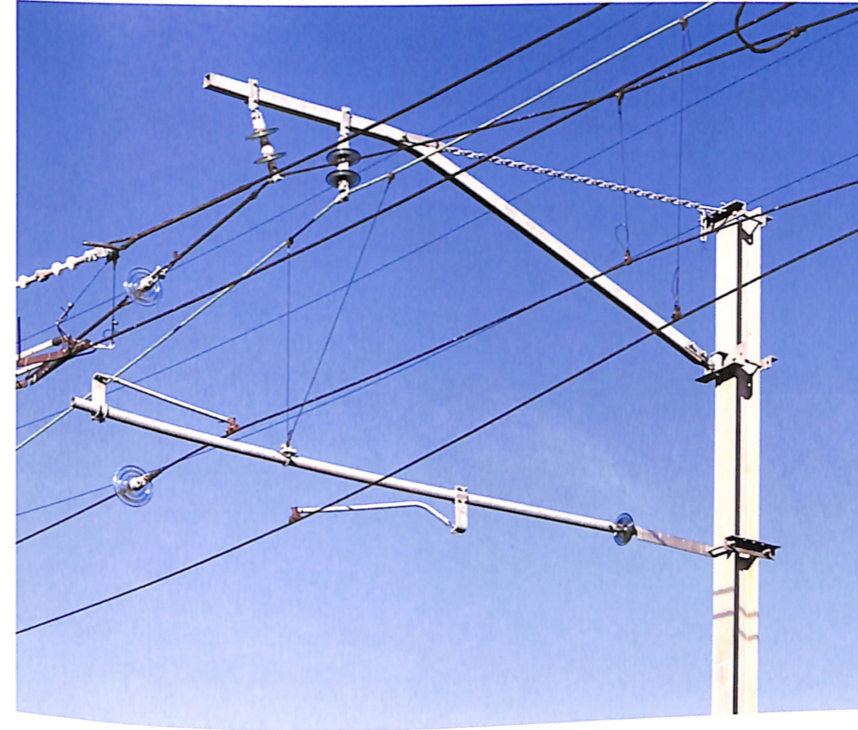
Train and tram crossing have been designed by our experienced overhead engineers using the latest technology available. Austbreck are able to produce cost effective solutions using interchangeable componentry which eliminates the need for excessive stock holdings.





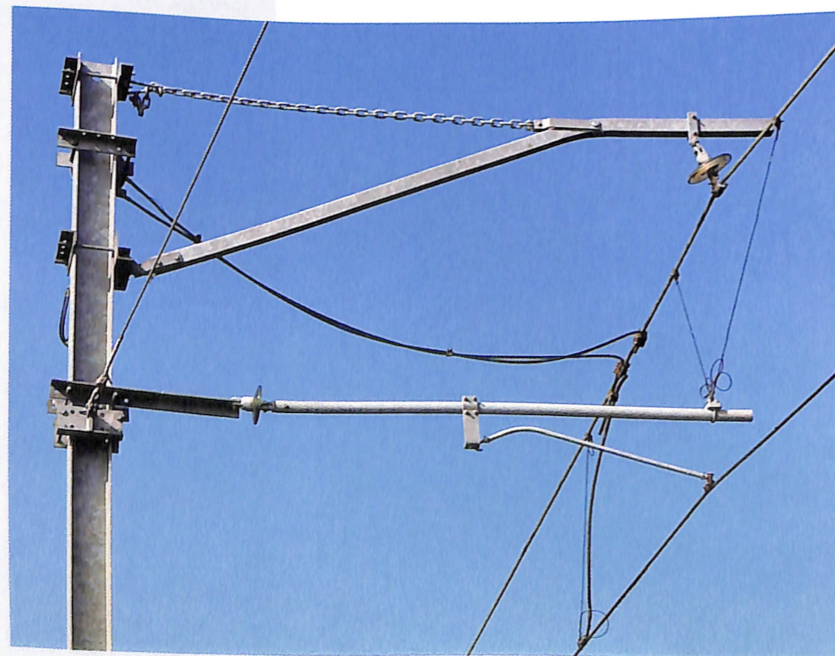
Boom cantilever & contact wire balance weight assembly

Austbreck are very flexible with their customers changing requirements, manufacturing assemblies of the type illustrated. This is a weight tensioning system which keeps the required tension of the overhead to the required tension specification.



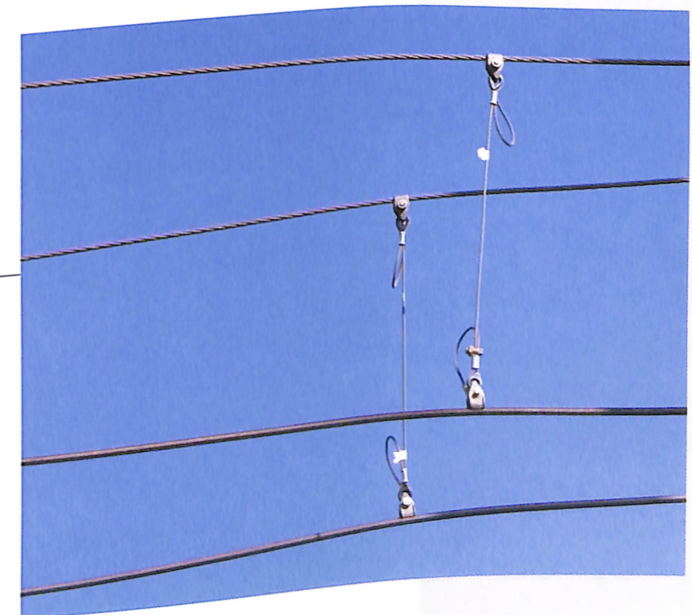
Catenary Support

Pictured is a catenary support station used in the train infrastructure systems, designed by highly experienced engineers. Our reputation for these design structures is first class.



Pull-off System

This illustration shows a typical pull-off lever which holds the wire in running position used on heavy rail overhead systems.



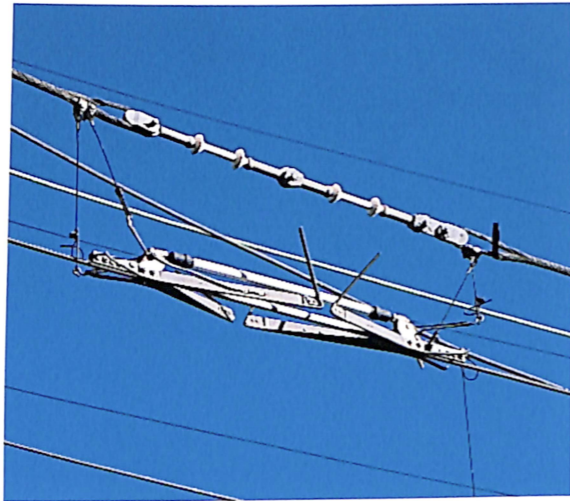
Dropper assembly

The dropper assembly fits between the contact and catenary support to hold line conformity. Austbreck manufactures to our customer's specifications where required.



Section Insulators

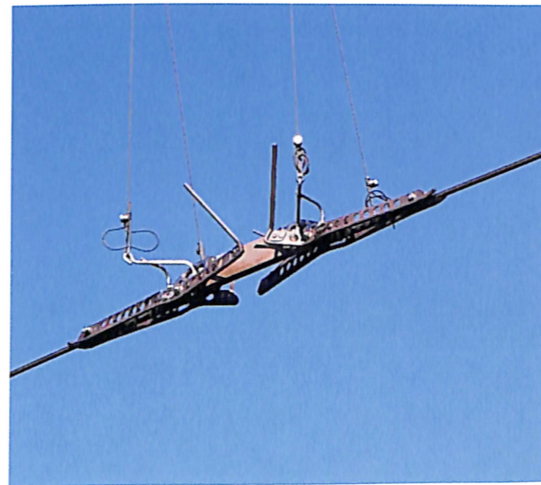
Austbreck's section insulators are made to the highest standard and are used extensively throughout Australia's train and tram network.



HSS insulator

High Speed Section (HSS) insulators isolate two electrical sections on a normal high speed overhead line.

Austbreck's Engineering Department is at the forefront of design with Section Insulators. The Fandstan Electric Group has worldwide experience to back up these claims.



LSS insulator

Low Speed Section Insulators have the same characteristics as the (H.S.S) but are used in Low Speed Sections. Eg: SIDINGS

Traction Systems

Austbreck offers the service of designing various traction systems.

Being part of the Fandstan Electric Group, Austbreck can call on worldwide resources to identify optimal, cost effective solutions to sensitive local market requirements which is complimented by the deep-seated commitment to on-going customer support.

This extends beyond the scope of contractual sale and excellent after sales service is provided.

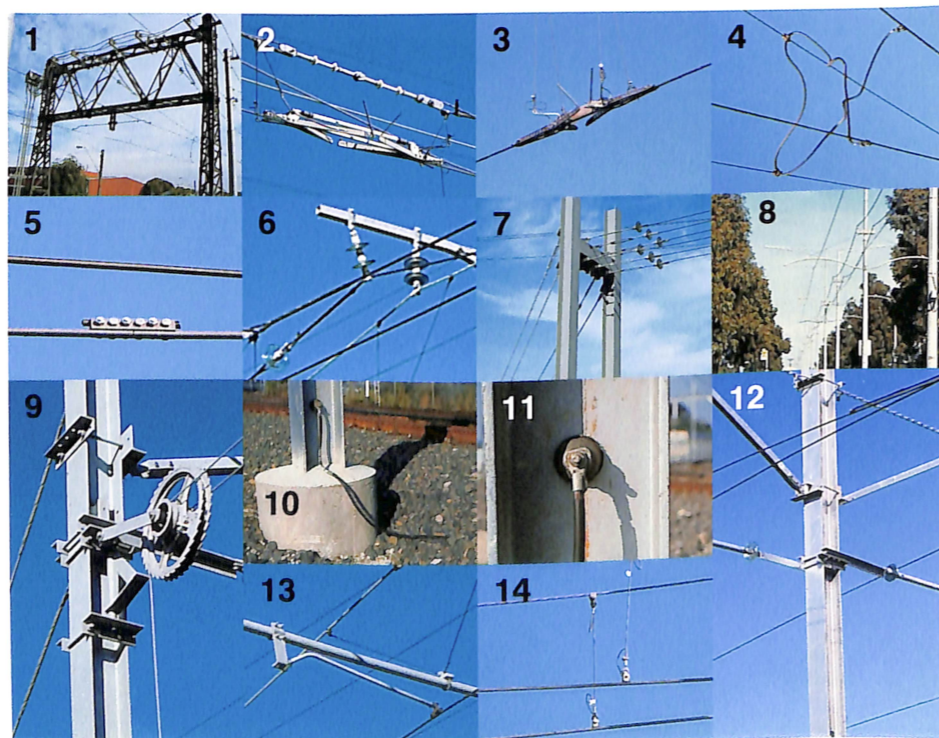


Support structure

Austbreck are extensively involved in many projects and specialise in the design and manufacture of different types of overhead traction systems.

Train Components

- 1 Steel structure
- 2 HSS insulator
- 3 LSS insulator
- 4 Contact wire
- 5 Contact Wire Splices
- 6 Insulators
- 7 Guy wire
- 8 Catenary wire
- 9 Weight assemblies
- 10 Bonding conductors
- 11 Electrolysis equipment
- 12 Cantilevers
- 13 Steady arms
- 14 Droppers



Collectors

Austbreck manufactures a range of collectors to customers requirements similar to illustration.





Austbreck's Project Management Team

To ensure the successful delivery of all projects which are handled by Austbreck, we believe it necessary to have a strong project management team with committed and experienced personnel.

When required, we can call on the group's resources to assist in evaluating any project we are tendering for. Each project is individually assessed and handled by Austbreck's project management team and is not issued until the project requirements have satisfied Austbreck's Internal Design and Quality System.

Quality Policy

Austbreck's prime objective is to ensure that their customers are supplied only with products and services of the highest quality, consistent with, and fully conforming to, contractual and operational statutory requirements.

As quality is fundamental to the efficiency, reputation and long term success of Austbreck, a Quality Management System has been developed to comply with the requirements of AS/NZS ISO 9002:1994, with the associated Quality Objectives, Quality Manual and supporting Quality Procedures forming the basis of Austbreck's operations.



Copyright ©2000 Austbreck Pty Ltd
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form of by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright owners.
Design and print production by Gammin Design



The Fandstan Electric Group

Fandstan Electric Ltd
Craven House
16 Northumberland Avenue
London WC2N 5AP
England

Austbreck Pty Ltd
34-36 Westpool Drive
Hallam 3803
Victoria
Australia

Brecknell Willis & Co Ltd
PO Box 10
Chard
Somerset TA20 2DE
England

Stemmann-Technik GmbH
Postfach 1460
D-48459 Schuttorf
Germany

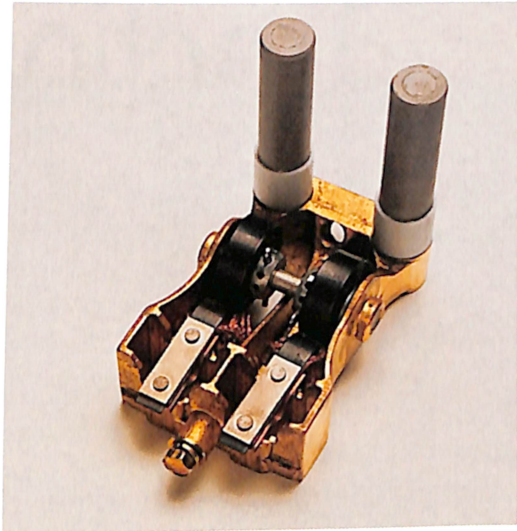
Transtech of South Carolina Inc
196 Old Augusta Road
Piedmont
South Carolina 29673-8605
United States of America

Brecknell Willis Composites Ltd
PO Box 10
Chard
Somerset TA20 2DE
England

Stemmann Technik Nederland BV
Dieperpoelkade 1
NL-2361 KD Warmond
Netherlands

Transelect SA
23 Rue de la Fete Dieu
98470 Moneteau
France

Stemmann Polska Sp Zoo
z.Hd. Frau Stach
U1 Fabryczna IZ
53-609 Warsaw
Poland



Brush holders

Austbreck supplies many types of brush holders which are used in DC traction motors. Austbreck have attained a dominant position in the design and manufacture of aftermarket brush holders.



Earthing contact

Austbreck's comprehensive range of earthing contacts is specifically aimed towards the rail, tram and mining industries. By integrating the group's marketing knowledge and engineering skills, sales of these products will help clients with OEM equivalents, with significant price reductions.



Traction system isolating units

Pictured is an isolating unit. Austbreck supply componentry for these units (eg. section insulators). The design has been refined by using the latest approved insulating materials from our worldwide resources. This enables the insulator units to have a reduction in overall weight and to be UV protected.

Design Capabilities

Since Austbreck commenced their overhead design team back in 1996, we have secured many tenders and contracts for new train and tram projects throughout Australia.

An experienced, qualified and progressive team of engineers head the department, hence our comprehensive knowledge of suburban electrified systems which places Austbreck in the higher echelon of overhead design companies.

Being able to manage material construction in house enables Austbreck to maintain efficiency, total control and flexibility of the total design package ready for installation contractors.

To compliment our overhead design capabilities Austbreck now provides design, documentation and project management of the permanent way (track).



Exhibition Street



Track Design Docklands



AUSTBRECK

Austbreck Pty Ltd

A member of the Fandstan Electric Group

34-36 Westpool Drive
Hallam 3803
Victoria Australia

ph: +61 3 9702 4011 fax: +61 3 9702 4088 email: sales@austbreck.com.au

Quality System Certified AS/NZS ISO 9002:1994