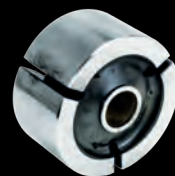




# RAIL CATALOGUE

2022



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## WHO YOU'RE DEALING WITH



Mackay Consolidated Industries is a 100% Australian owned private company which commenced operations in 1932 as a supplier of automotive parts. Since then Mackay has grown to become a major supplier of a diverse range of engineered rubber and bonded metal/rubber composite products for the automotive, defence, transport, construction and industrial markets.

**Our products are exported worldwide.**



Mackay is a first tier supplier to OEM's in the Transport, Defence, Automotive and Packaging Industries in Australia and internationally.

We are a second tier supplier to a number of other manufacturing companies which provide various products to the major automotives.

Mackay is a trusted supplier to the Australian Defence industry, providing products such as submarine components (internal & external), radar absorbing materials for surface warships, tank tracks, road wheels and pads, ballistic shields and launch covers for ESSM missiles for use on NATO warships.

Success in these markets has been built on a simple philosophy - understanding our customers' needs and providing timely, cost effective engineered solutions.

Our technical expertise, customer responsive service and commitment to continuous improvement, backed with sustained investment, are critical factors that have built our reputation for reliable, high quality, innovative products.

## GLOBAL QUALITY

Australia is in a unique position in the Global Economy.

Australia's open markets expose Australian manufacturers to worldwide technology innovations and quality standards.

Mackay's adoption of globally competitive technology, skills and quality standards is proven by the success of Mackay's products in many arduous applications around the world. From vehicle coolant hoses in the deserts, to industrial transmission components in factories to defence components in the field, Mackay products are proven performers.

The basis for this excellent track record is the depth of expertise and variety of work which the company's extensive development and manufacturing facilities have mastered over many decades. The commitment starts with a thorough knowledge of the materials and extends through to a vast number of varied applications. Mackay's R&D perfects the manufacturing process which includes error prevention measures that assure product quality. Mackay has earned its respected global position in rubber engineering by maintaining the highest standards and constantly extending its range of skills.



## A WEALTH OF RAIL EXPERIENCE



Mackay Rubber is well established as a designer and manufacturer of engineered rubber components for the Australian Rail industry.

We design and manufacture critical bogie primary and secondary suspension components as well as engine & transmission raft mounts, and various other resilient elements.

We currently supply the major rail constructors in Australia including Alstom, Bombardier, Downer Rail and United Group Limited Rail.

Mackay supply the major train and light rail operators in Australia including Yarra Trams Victoria, Metro Rail-Victoria, Vline-Victoria, Queensland Rail, RailCorp-NSW and Aurizon.

In addition to the supply of first class rail product, we also act in a variety of consulting roles for example, evaluation of the suitability of rubber/metal bogie elements to be reinstalled at a major service interval for a large train manufacturer.



We offer Australia wide service and back up which enables us to guarantee support for our products in the long term.



## THE MACKAY ADVANTAGE

Dealing with us has a number of advantages.

Our local presence in Australia allows us to be far more responsive in the local market for both initial build and ongoing provision of replacement parts in the future.

**Our size allows us to manufacture small runs with short lead times.**

We offer a complete in-house design and testing service with materials development and production mixing carried out on the one site.

Our experienced engineering staff use Unigraphics CAD and Solid Edge drafting systems and ANSYS finite element analysis to model customer requirements, reducing lead times from concept to prototype and finished product, service interval for a large train manufacturer.

Our NATA accredited physical testing laboratory conducts simulated service testing on prototypes ensuring that products not only perform the tasks for which they are designed, but meet the

durability requirements of customers' applications.

Mackay's engineering design facilities have been expanded to include Kinematic Modelling and Fluid Coupled Finite Element Modelling. This places Mackay's design capability at the forefront of international design.



## BOGIE ELEMENTS

Passenger, locomotive and wagon bogies can contain a number of resilient elements such as bump-stops, bolster springs, spherical & plain bushes, elements for steerable bogies and shock-absorber mounts. Mackay has designed and manufactured resilient elements for many years. For a number of projects has significantly redesigned components for service life improvements.



## LOCOMOTIVE SELF STEERING BOGIE COMPONENTS

EDI Rail designed Radial Steering Bogie. Based on EMD's highly successfully Radial Truck technology, the Radial Steering Bogie has a lightweight fabricated frame and utilises the latest design techniques to provide a self-steering bogie, which is suitable for use on Australian track.

Mackay designed and manufactured the resilient elements to meet EDI performance and durability requirements.

The steerable bogie design has been adopted for Class 4000 narrow gauge locomotives for Aurizon



## COUPLER REPLACEMENT PARTS



## PASSENGER PRIMARY SUSPENSION ELEMENTS

Mackay has developed replacement primary suspension elements for an Australian suburban operator. The Primary suspension elements are of two types. Elastomeric Conical and Elastomeric Conical with integral fluid damping.

Mackay's engineering design facilities have been expanded to include Kinematic modelling and Fluid Coupled Finite Element Modelling.

This expanded capability moves places Mackay's design capability at the forefront of design in the region.

Mackay's ability to re-engineer primary suspensions allows further development of suspension characteristics for improved ride and durability.

Mackay manufactures in low volumes with production batch sizes as low as 96 pieces (3 car set).



## LOCOMOTIVE PRIMARY SUSPENSION SPRING

Mackay has designed and manufactured both original equipment and replacement locomotive primary suspension elements.

Re-engineering has been undertaken to allow for an increase in locomotive weight during upgrade whilst maintaining unchanged fitment.

Mackay has also provided re-engineered elements to address in-service life-time issues with original equipment.



## SECONDARY SUSPENSION ELEMENTS

Mackay has a long history in design and manufacture of locomotive secondary suspension elements. These elements have been for original equipment supply as well as re-engineered replacement parts for increased service life.



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## ENGINE, TRANSMISSION & RAFT MOUNTS

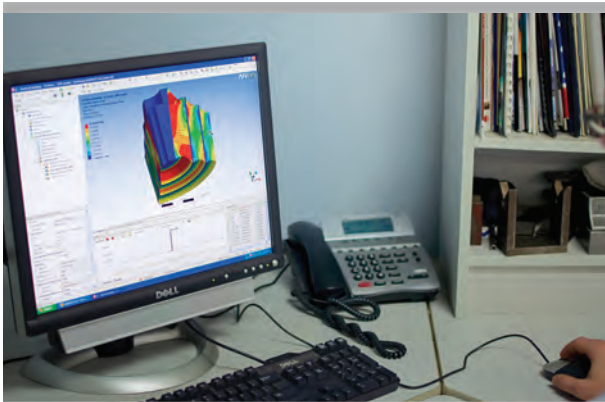
Engine, transmission and raft mounts can be custom designed or selected from our standard range. Mounts have been manufactured in higher temperature and higher damping compounds as well fully custom designed and manufactured to provide optimum performance not available from the standard designs.



## A COMMITMENT TO QUALITY

We are committed to attaining the highest standards possible from concept through to final product. This no-compromise approach involves using the best materials available, combined with innovative product and process development. Our management systems ensure customers receive optimal solutions to their needs.

- BSI 9001:
- BSI 14001:
- ISO/IEC 17025:2005 (NATA approved Laboratory)



All properties nominal, contact Mackay for Technical advice

All Dimensions in Millimetres





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