NEPEAN Conveyors
From humble beginnings in Picton, New South Wales, NEPEAN Conveyors was established in 1985 to provide specialised materials handling equipment for the mining sector. More than thirty years on, NEPEAN Conveyors now supplies markets throughout Australia, New Zealand, South Africa, China, Indonesia, Japan, Great Britain, Canada and the USA.

With well established design and manufacturing facilities in Mackay (Queensland), Smeaton Grange and Picton (New South Wales) and Johannesburg (South Africa), and an office in Perth (Western Australia), NEPEAN Conveyors are capable of delivering jobs from concept to commissioning on a scale from the small, right through to the very complex, multi-million dollar level. The experience of NEPEAN Conveyors is recognised by the growing list of high profile clients within the mining industry.

NEPEAN Conveyors is 100% Australian owned and operated, and is a subsidiary of NEPEAN. NEPEAN is one of Australia’s leading privately owned engineering, mining services and industrial manufacturing groups with unique capabilities to deliver high value, innovative and sustainable solutions for the world’s leading construction, transport and mining businesses. Established in 1974, NEPEAN operates in more than 8 countries, employing more than 1,100 staff.

VISION
To be the chosen partner for high value, innovative and sustainable solutions for the world’s mining companies.

MISSION
Help create and support growth across our industry sector and deliver on the business potential of our key customers and stakeholders.

We create solutions that exceed customer expectations.

We will achieve this by challenging current thinking to deliver integrated, responsive and innovative solutions and services, supported by best practice in safety, design, project management and strategic partnerships.

VALUES
We will always value our employees, our customers, the environment and the society we operate in by acting responsibly, ethically and with integrity, while at the same time remaining innovative and entrepreneurial.

From Concept to Commissioning
NEPEAN Conveyors understand the importance of plant reliability, especially in a mine environment. We can design your concept, manufacture the product and project manage its’ commissioning – and we can even look after you and the product with an after sales maintenance program.

From concept stage, we listen to your requirements, and we consider the life cycle requirements of the equipment and how, if relevant, it will best be integrated into existing footprints while delivering asset maximisation. Our proven industry experience ensures you’re getting the best possible solution for your requirements, not just for today but for the life of the site.

When dealing with NEPEAN Conveyors, you gain access to our in-house specialist design team and a comprehensive product range. Our Systems Engineers are constantly improving products, standard and customised, through close interaction with suppliers and end users, and by adopting industry best practice.
Our Capability

NEPEAN Conveyors specialise in conveying solutions across three key markets:

Underground
A harsh environment where safety is paramount and reliability is the only option, NEPEAN Conveyors has significant experience in designing underground conveying solutions that are highly reliable and enable maximum productivity levels.

With our NEPEAN partners, NEPEAN Longwall, we have developed specialised conveyor systems for the industry’s most advanced longwall operations.

Overland
Engineered for mining and other industrial applications, NEPEAN Conveyors can design a solution that maximises your investment. Working with our Project Engineers, we can provide high quality product to meet your lead times, even for short timeframes.

Port Authorities
Specialised solutions have been designed by NEPEAN Conveyors for the conveying of materials at ports all around Australia.

With our modern manufacturing facilities, we have the capability to deliver:
- Concept engineering, budget preparation, risk assessments and project feasibility costings
- Functional specification and conveyor design
- Comprehensive range of conveyor equipment
- Access to all brand specified components
- Engineering and technical services support
- Testing and refurbishment facilities
- Pre-assembled product inspections prior to delivery
- Site services including installation, supervision, equipment commissioning and routine maintenance
- Integration of equipment with other original equipment manufactured sites
- Operator training and assessment

Life cycle requirements of the equipment are a major consideration at design, and NEPEAN Conveyors use specialist conveyor analysis packages and design tools such as Catia, X-Steel, Autodesk inventor and AutoCAD to provide the basis for design. This is complemented by custom developed pulley and idler design software to ensure efficient component selections for our clients’ conveyor systems. True scale drawings can be provided as necessary.

In conjunction with fellow NEPEAN member, NEPEAN Power, a wide range of electrical substation and starter designs are available, including Variable Voltage Variable Frequency (VVVF) and flameproof starters. Development of conveyor control software is integral to our design.

Should you have other original equipment manufactured products on site, NEPEAN Conveyors can devise a solution to be compatible with them. We want to make it easy for you to deal with us.
Why Choose NEPEAN Conveyors

NEPEAN Conveyors is a specialised company actively pursuing, refining and successfully implementing new technologies for conveyor solutions, and in so doing delivers our customers the following advantages:

- NEPEAN Conveyors is the only private, Australian owned manufacturer of conveying solutions. Because we are privately owned, decisions are made here and without multiple layers of bureaucracy generally encountered when dealing with corporate organisations.
- Safety is a major focus for all of our customers, and NEPEAN Conveyors have a “Zero Harm” policy.
- Life cycle analysis and risk management are design priorities for NEPEAN Conveyors. We understand our obligations as an employer, and our obligations as a manufacturer and supplier in accordance with legislative requirements. This includes standardisation of components, system approach to overall coal clearance control philosophy and asset optimisation.
- We are a specialist company and we focus only on conveyors, unlike some of our major competitors who do many things. We can, however, develop solutions for other aspects of a conveying project with our fellow NEPEAN specialist companies, for example, power control elements with NEPEAN Power.
- Our capability to provide a turnkey package. We listen and respond to your needs to provide a reliable solution which enables the asset to be optimised. We have proven products operating in multiple industries and we guarantee spare parts will be available.
- We have a market reputation for undertaking complex projects that are too hard for everyone else because we have the technical expertise to provide a solution. We are able to answer questions quickly about aspects of the whole offer because we design, manufacture, install, commission and provide after sales support.
- Our products are designed to meet or exceed service life expectations, and we deliver on time in full.
- Longevity in the market provides peace of mind that we’ll be around until the expiration of the project warranty. Moreover, our access to other NEPEAN companies such as NEPEAN Engineering & Innovation provides you with additional engineering expertise and facilities that are second to none.
- With each project, we develop a customer Alliance Agreement to ensure the best possible outcome. This includes the appointment of a specific Project Manager, the development of a plan for integration into site, assistance with the scoping study, the supervision of installation and open and transparent decision making.
- Like all NEPEAN businesses, NEPEAN Conveyors are committed to investing in the future of Australian manufacturing, and we continue to grow our capability with new facilities and state of the art manufacturing equipment.

Our Experience

NEPEAN Conveyors possess the proven industry experience to work with their growing list of high profile clients in the mining industry. This has come with a lot of hard work and the development of strong working relationships.

The design phase for a project is where a significant amount of time is spent – if the design isn’t right then everything else can be inferior. Our in-house specialist design team listen to customers’ needs, overlay that with their experience, and the outcome is the best solution.

There is still opportunity to tweak structural elements throughout the manufacturing process as NEPEAN Conveyors understand that millimetres can be worth thousands of dollars onsite. To mitigate fitment issues with an installation, inspections of pre-assembled products are conducted at our manufacturing facilities.

It goes without saying that in the mining industry, “unscheduled downtime” must be avoided as much as practicable. Should a problem occur with an idler product, time cannot be wasted and the issue must be fixed as quickly as possible. NEPEAN Conveyors have built a strong reputation for their responsiveness in situations like these, and pride themselves in the challenge of getting our customers back up and running. Staff are on call 24 hours a day, 7 days a week should a problem arise, and if necessary, are available to go to site to fix an issue.

NEPEAN Conveyors continue to invest in research and development of new technologies and human resource.

After Sales Support

Our experience has taught us that a project is not over when the product is commissioned. NEPEAN Conveyors can develop an after sales maintenance program that optimises the life of the asset as much as practicable.

Conveyor Maintenance

NEPEAN Conveyors can develop a maintenance program that includes:

- Vibration and temperature analysis on rolling elements
- Programmed maintenance
- Maintenance management programs to suit customer needs and spare parts requirements
- Development, Maingate, Trunk, Drift maintenance.

There is no compromise on safety for NEPEAN Conveyors at any company facilities or that of our customers. At all times and at all sites, NEPEAN employees observe and comply with all safety requirements.
Our Products

NEPEAN Conveyors understand the complexities that come with projects, and that there is not a ‘one size fits all’ solution. The diverse range of customised products and services include:

- Material transfer and delivery chutes
- Host and Tripper Driveheads – modular or site specific
- Soft start transmissions including BOSS, CST, TPKL, variable fill fluid couplings and VVVF drives
- Belt storage systems, winders and take up units
- Constant tension winches
- Conveyor pulleys
- Conveyors idlers and structure
- De-watering systems
- Receival bins
- Belt feeders
- Radial, fixed or tripper type stacker conveyor systems
- Trunk conveyors
- Dynamic conveyor braking solutions
- Belt maintenance and reeling stations
- Longwall and development boot ends
- “Jiffy” and “Nifty” combination jib/drive/LTU units
- Equipment upgrade and overhaul
- Refurbishment

The variety of idler products may seem endless, but should you require a specialty idler, contact us to discuss your requirements.

The standard idler types such as basic frame mounted troughs, impact and return, have a vast range of configurations, combinations and variants including suspended, retractable, jack down and fold down. NEPEAN Conveyors has developed new solutions and designs to make light work of trouble spots as maintenance and operation issues are identified.

Several alternative materials for rollers are available – aluminium, polyurethane and steel.

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<tr>
<th>Type</th>
<th>Application</th>
<th>Advantages</th>
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<tr>
<td>Aluminium</td>
<td>S suited for use in salt applications or other highly corrosive materials handling systems</td>
<td>Low Noise</td>
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<td>Less Weight = Reduced Resistance</td>
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<td>Polyurethane</td>
<td>S suited for use in salt applications or other highly corrosive materials handling systems</td>
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<td>Lightest Weight</td>
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<td>Steel</td>
<td>S suited for use in heavy duty applications where strength is paramount</td>
<td>Heavier Tonnage</td>
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<td>Higher Tensions</td>
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Idlers

A diverse range of idlers and structure type are available including replacement or upgrade of existing idlers to customer specification.

The NEPEAN Conveyors idler production facility is one of the most advanced in Australia. Since its commissioning in 2001, its performance has continued to exceed all expectations. Current tooling and equipment of the automated line is designed to handle high speed conveyor roll up to a diameter of 193.7mm. Larger sizes are available upon request.

The design of NEPEAN Conveyors’ idlers for different materials meet the design and tolerance requirements of any given customer specification, standard drawings and relevant Australian Standards. All work performed and all materials supplied shall conform to the Rules and Regulations of the local and/or statutory authority having jurisdiction over the work. When designing an idler, NEPEAN Conveyors consider information such as belt width, belt mass, belt speed, belt design capacity, material type (e.g. primary crushed, secondary crushed to 32mm product) material bulk density range, material surcharge angle, idler spacing (carry and return), maximum oversize lump size, dimensions and mass, chute drop height and conveyor noise requirements.

The benefits of NEPEAN Conveyors’ idlers include:

- Accurate concentricity with line bored shells for smooth operation and reduced belt flap and vibration as well as increased bearing life
- Shafts and caps are accurately aligned due to each end being machined at the same time rather than one end first and then the other
- Labyrinth seals
- Patented “lipped flange” housing resulting in total indicator runout (TIR) providing increased bearing life and reduced shell wear
- External chamfer on tube which protects the belt edge
- Tube-housing internal fillet weld protected from belt wear
- Triple tested quality for rotational torque, TIR and bearing play
- Results are stored for easy traceability
- Capable of being retrofitted to any frame – ours or theirs

Total Indicated Run Out

Noisy belt flap, structural vibrations, roll imbalance and reduced bearing life can result from excessive Total Indicated Run Out. Regular checks to ensure compliance with quality standards are conducted by NEPEAN Conveyors throughout their manufacturing process.

Rim Drag

It is important to consider roll drag on the efficiency of any conveyor system, and how it can be minimised. Without proper design consideration for roll drag, power consumption can be increased which in turn can affect the life of the roll shell. NEPEAN Conveyors design optimise seal efficiency, correct bearing fits and lubrication to maintain drag at acceptable levels – without compromising roller life or capacity.

Idler testing is carried out by Tunra Bulk Solids Handling Research Associates at the University of Newcastle.
Idler Specifications

- **Shafts** – CNC machined, hollow or solid, from bright or black bar to AS1442, AS1443
- **Shells** – made from grade C350 HSCR high speed conveyor roll to AS1450 and designed for infinite fatigue life
- **Shell end caps** – designed to shed any water or material build up
- **Bearing Housings** – precision deep drawn housings from AS1594 Grade HA3P
- **Idler Bearings** – deep groove ball bearings NSK or SKF brand, C3 or C4 clearance sealed for life and suitable for highly abrasive dust laden environments, and to prevent entry of rain and water from high pressure hoses and water sprays
- **Lubrication** – all bearings greased using Shell Alvania EP2 or Calithia AM2
- **Sealing** – triple labyrinth or lip seal arrangement with dust seal and grease retainer, depending on bearing size
- **Impact Discs and Lagging** – rubber and Fire Resistant Anti Static (FRAS)
- **Surface Treatment** – corrosion protection by painted or hot dip galvanising. End housings are painted with one coat of undercoat primer and one coat of “NEPEAN Bottle Green” final enamel, or customer designated colour.
- **Balance** – static and dynamic tested, and concentricity constantly monitored and recorded
- **Wind Boards** – designed to safely withstand the appropriate design wind velocity as per AS 1170
- **Frames and Supporting Structure** – hot dipped galvanised to AS1650. Specific customer requirements can be arranged
- **Product Identification** – manufacture date identification is hard stamped on the shaft ends or dated plugs inserted into the shaft ends. All markings shall be permanent and legible for the life of the roller and frame. Different coloured roll ends distinguish type.

Idler Testing and Refurbishment

NEPEAN Conveyors offer a full Idler Testing and Refurbishment service for all idler types including return, carry and suspended carry types.

This service can improve conveyor availability and extend the life of your idlers, and is a must for belt conveyors operating in return airways. With test apparatus designed to simulate in-situ loading, a comprehensive reporting system provides full statistical analysis of the condition of idlers.

The testing process includes:
- The removal of scale and surface contamination
- A visual inspection of the dust seals
- Shell thickness testing
- Ultrasonic testing to determine the life and condition of the bearing and seal arrangement

Upon completion of idler testing, a comprehensive report is forwarded to the customer prior to commencement of any repairs. The report typically includes such information as:
- Replacement of worn idlers
- Bearing and seal replacement
- Colour coding of tested idlers to determine the service history
- Standard or customer specific packing

For demanding applications, our specialist design team can provide recommendations on shaft and seal alterations to improve performance and life.

There are several reasons to consider refurbishment:
- It can be a cost effective option
- Minimises down time of your conveyor systems so you don’t lose valuable production time
- Paint colour coding systems can be used to determine the history of individual idlers for future refurbishment.
Idler Frames

The purpose of base idlers is to provide a minimum gap between rollers and to give added protection to the conveyor belt. Sloped frame outers are designed to prevent material buildup around the shell end which can cause premature shell wear because of roll jamming. The frame cross members optimise the strength-weight ratio which provides adequate support for the rolls under load conditions.

NEPEAN Conveyors in-house specialist design team will work through your requirements for idlers and frames, and customise them to meet individual customer needs. Design of all idlers and frames should consider, as a minimum, load components such as burden (carried material), flooded belt loading, belt mass, component self masses, deviation loadings due to possible vertical misalignment of adjacent idler sets, deviation loadings to convex curves, material ‘lump factor’ and other dynamic factors which allow for belt flap and miscellaneous dynamic influences.

A number of frame types are available such as:
- Garland suspended and rigid
- Fixed trough – inline or offset
- Rolled trough – inline or offset, fixed vee return
- Flat return
- Retractable impact sets
- Adjustable impact sets
- Training sets
- Suspended
- Varitrough
- Pipe transoms for belt protection
- Transition
- Belt training assemblies
- Inverted angle

Welding
NEPEAN Conveyors’ base frames are jig welded to ensure accurate alignment of slotted mounting brackets. All roll supports are smooth welded and cleaned prior to surface treatment. This enables maximum application of protective coatings.

Blasting
To ensure good coverage and adhesion of surface coatings, all NEPEAN Conveyors idler frames and brackets are blasted prior to surface treatment.

Inspection
Every NEPEAN Conveyors’ idler frame is subjected to inspection prior to commencing the welding run to confirm dimensional accuracy. At various points of the manufacturing process, selected frames are checked for dimensional accuracy in accordance with relevant quality standards and customer specification.
Accessories

Aluminium Products
Conveyor Emergency Pull Wire Switch System
Drop Down Idler Sets
Galvanised Products
Heavy Duty Retractable Idlers
Plates
Retain Clips
Roll Retainers
Rubber Disk & Lagging
– Bullnose impact rubber
– Bull nose impacts
– Centre impact rubber
– End impact rubber flanged
– Impact discs
– Lagged roll
– Return rubber disc
Side Guide Roll (return)
Side Guide Roll (trough)
SMH Impact stations
Stone Guards
Supersensitive Trainer
Suspended Roll Methods
Windguards

Quality Assurance

All idlers and frames manufactured by NEPEAN Conveyors are subject to industry standard quality assurance testing procedures and processes. In some cases, we understand that customers specify inspection levels required and that defect acceptances need to be submitted for approval prior to commencement of manufacture, and we liaise as relevant to meet these requirements.

Testing results are logged and can be included in the Manufacturer’s Data Report (MDR). Test Certificates recording the compliance of materials and equipment with the relevant standards and customer specifications are also supplied as part of the MDR.

Generally, quality assurance testing is completed for the following aspects:
- Dynamic balance
- Shaft*/roll concentricity
- TIR and the rate of change of TIR
- Random checking of roll seal drag
* Shafts are tested after final machining in accordance with NEPEAN Conveyors manufacturing standards.

Packaging

After quality assurance inspections have been completed, idler assemblies are packed for transport and storage.

Suitable protection shall be provided for parts subject to exposure to the elements during storage on site or against damage to surfaces during installation.

Packaging Specification can be tailored to customer requirements.

Commitment to a Green Approach to Business

At NEPEAN Conveyors, we understand that everything we do affects the environment. We continually review our systems and processes to identify opportunities for us to be more caring for our environment.

We are committed to finding solutions that reduce our environmental impact without compromising our service or quality levels, and we focus on the following:

- **Pollution Prevention** – we commit to prevent the release of harmful substances into the environment
- **Water and Energy Conservation** – we commit to conserve water and energy in our operations
- **Waste Reduction** – we commit to reduce waste in our manufacturing processes and all of our business operations
- **Sustainability** – we commit to offer sustainable product solutions that help reduce the carbon footprint impact
- **Recyclability** – we commit to buy, sell and use products that may be recycled
- **Stewardship** – we commit to do business with others who share our philosophy of progressive environmental policies

We operate our manufacturing facilities in accordance with all necessary environmental permits, approvals and operational controls. We adhere to all applicable environmental laws and regulations and commit to exceed the required levels of compliance wherever feasible.

We are continually working to find new ways to make our company as environmentally friendly as possible. We hope you will support us in making our environment a cleaner, better place.
PRODUCT WARRANTY

Standard one year warranty

Extended warranties are applicable in certain circumstances. For further information, please talk to our NEPEAN Conveyors staff.

A standard product warranty applies to NEPEAN Conveyors idlers and frames. NEPEAN Conveyors warrant that the goods be free of defects resulting from faulty materials and workmanship for a period of one (1) year and/or two (2) years after delivery whichever comes first. This excludes normal shell wear and tear and misuse.

The warranty is in accordance with the international bearing manufacturing practice which recognises that up to two per cent (2%) of rollers may fail annually due to bearing failure without liability on our part. Any quantity of bearing failure in excess of 2% will be warranted by NEPEAN Conveyors.

This warranty does not apply to rollers that are modified or added to without approval, or rollers which are operating outside the original design parameters.

Under no circumstances shall the company be liable for the loss of profits or for consequential or other damage.

Information contained in this document was correct at the time of printing but may change at any time without notice.
06/2011