

INNOVATION.  
NOT DUPLICATION.™



MINING SOLUTIONS

## DIVISION OVERVIEW



# DIVISION OVERVIEW

H-E Parts International Mining Solutions (H-E Parts), is the leading independent supplier of replacement parts and components for haul trucks, electric shovels, hydraulic excavators and support equipment to the global mining industry. At H-E Parts, we pride ourselves on providing complete drivetrain solutions for industrial heavy equipment in the mining industry.

## OUR MISSION AND CUSTOMER PROMISE

Our mission is to supply customers with the highest quality replacements parts, components, and services that improve life cycle performance and lower costs. We will deliver a superior alternative by providing innovative, engineered solutions designed to support mine and industrial maintenance professionals. Our aim is to provide the best customer services through an empowered, talented, and responsive team. We will provide a safe, productive, and supportive workplace that attracts and retains the best employees.

Delivering Quality and Value with Exceptional Service.

## CORPORATE OVERVIEW

H-E Parts International (H-E Parts) is a leading independent supplier of parts, remanufactured components and equipment to the global mining, quarrying, heavy construction, and energy sectors.

H-E Parts International is comprised of the following divisions:

- Mining Solutions – Complete drivetrain solutions.
- Crushing Solutions – Crusher liner development, parts and wear product solutions.
- Engine Solutions – Diesel engine remanufacturing and service solutions.

Our divisions offer solutions in support of mobile surface mining equipment, fixed crushing and minerals processing equipment, and mobile construction equipment fleets.

At H-E Parts, we provide our customers with a superior alternative to many of the traditional OEM channels by responsively delivering innovative solutions that reward the customer with the lowest total cost of ownership.

## SAFETY

At H-E Parts, one of our core values is that we will not compromise accident and injury prevention, or environmental compliance for profit or production.

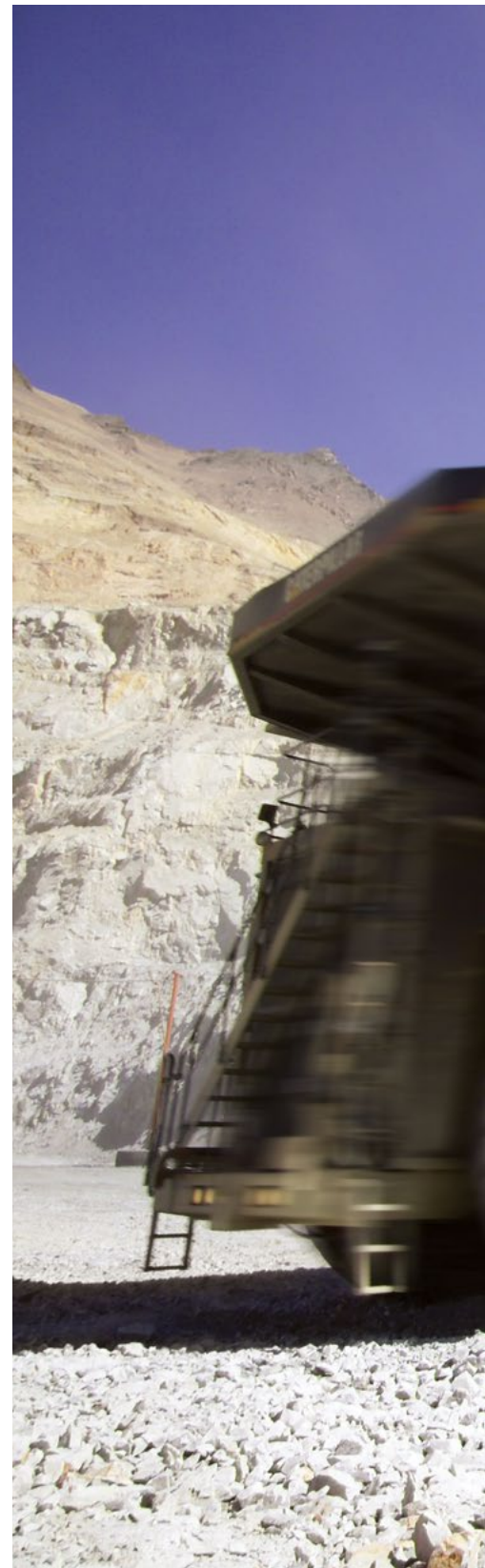
We are working towards creating safety excellence, not just focusing on preventing accidents and as such concentrate on what goes right, not just what goes wrong.

Our “See You Tomorrow” philosophy is underpinned by a set of beliefs, behaviors and key safety promises that drive positive safety outcomes.

## QUALITY

H-E Parts places priority on quality to ensure we meet or exceed clients’ expectations in design, products, services, and solutions globally.

Quality and compliance is an integral part of what we do at H-E Parts, and as such, we regularly review and improve our policies and practices to reflect this.





# COMPLETE DRIVETRAIN SOLUTIONS

H-E Parts International is a global supplier of competitive replacement parts and aftermarket services to the mining and construction industries.

H-E Parts lowers our customer's maintenance costs by combining quality parts and rebuild solutions that:

- Extend the life of components and machinery.
- Increase our customer's competitive advantage by reducing costs and maintenance life.
- Offer our customer a tailored suite of remanufactured, new and reconditioned solutions.

## ENGINES

H-E Parts provides a world class industrial diesel engine re-manufacturing service. Our dedication to quality and precision ensures that every remanufactured diesel engine runs like new, increasing reliability while lowering costs.

## COOLING SYSTEMS

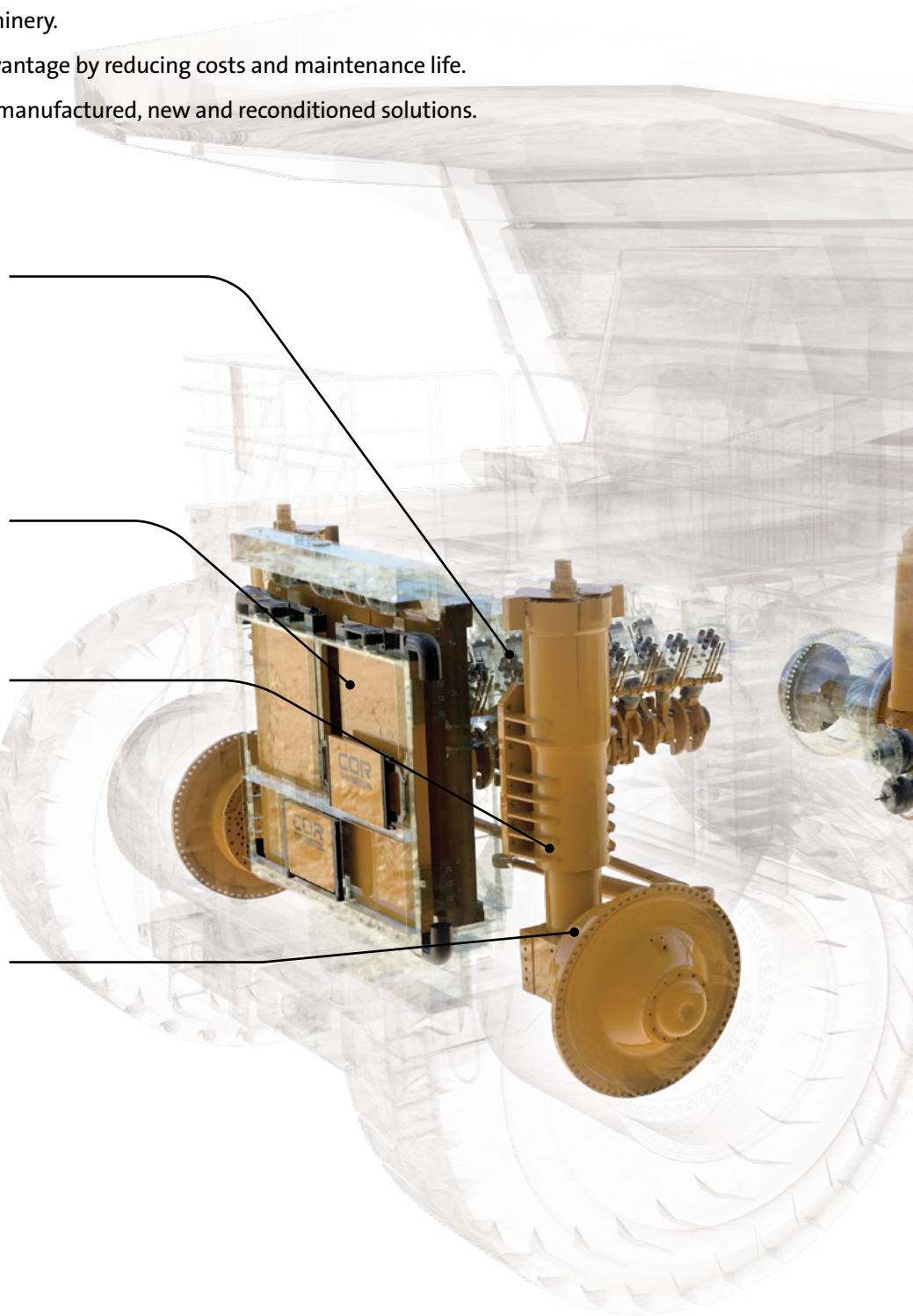
H-E Parts COR Cooling division is a leading provider of heat transfer solutions for a range of industries.

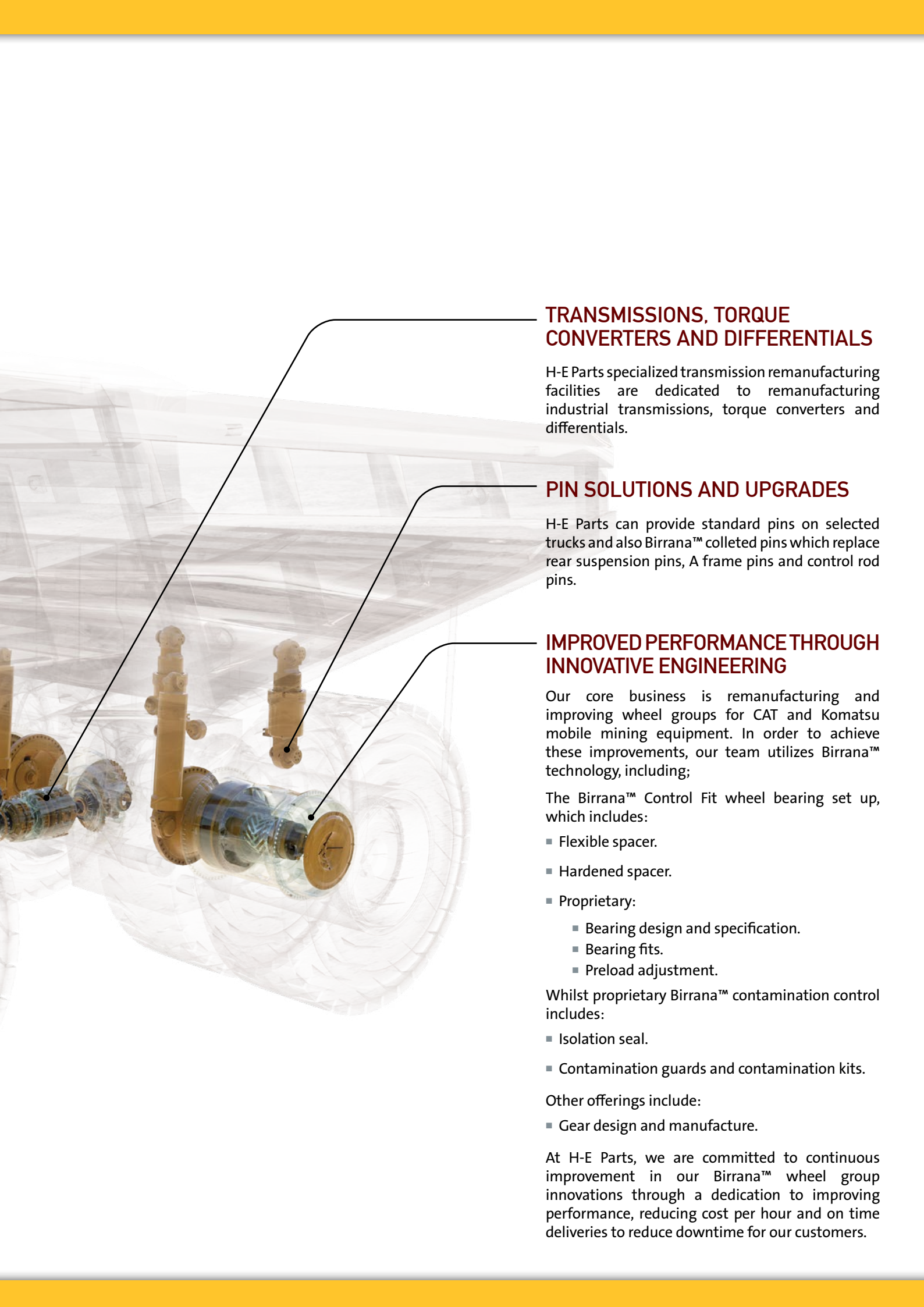
## FRONT AND REAR SUSPENSION

Suspensions are inspected, repaired and remanufactured to our own engineering specifications. Proprietary tooling and repair procedures are used to help ensure rapid turn-around times and long-life rebuilds.

## WHEEL GROUPS AND FRONT CORNER SYSTEMS

H-E Parts range of Birrana™ innovative technologies are time-tested and utilize trusted technology, with a documented history of extending life and lowering costs.





## **TRANSMISSIONS, TORQUE CONVERTERS AND DIFFERENTIALS**

H-E Parts specialized transmission remanufacturing facilities are dedicated to remanufacturing industrial transmissions, torque converters and differentials.

## **PIN SOLUTIONS AND UPGRADES**

H-E Parts can provide standard pins on selected trucks and also Birrana™ colleted pins which replace rear suspension pins, A frame pins and control rod pins.

## **IMPROVED PERFORMANCE THROUGH INNOVATIVE ENGINEERING**

Our core business is remanufacturing and improving wheel groups for CAT and Komatsu mobile mining equipment. In order to achieve these improvements, our team utilizes Birrana™ technology, including;

The Birrana™ Control Fit wheel bearing set up, which includes:

- Flexible spacer.
- Hardened spacer.
- Proprietary:
  - Bearing design and specification.
  - Bearing fits.
  - Preload adjustment.

Whilst proprietary Birrana™ contamination control includes:

- Isolation seal.
- Contamination guards and contamination kits.

Other offerings include:

- Gear design and manufacture.

At H-E Parts, we are committed to continuous improvement in our Birrana™ wheel group innovations through a dedication to improving performance, reducing cost per hour and on time deliveries to reduce downtime for our customers.

# BIRRANA™ WHEEL GROUPS

H-E Parts has decades of experience continuously developing and improving their Birrana™ technology. The enhanced design features of the Birrana™ wheel groups afford the end user extended life, ease of maintenance and performance. H-E Parts Birrana™ wheel groups come with a range of innovations as standard. These include:

## **BIRRANA™ CONTROLLED FIT SPACER**

The Birrana™ Controlled Fit Spacer helps to maintain bearing preload to improve bearing life. H-E Parts Controlled Fit flexible spacers are used to improve preload retention periods and bearing life. The use of the spacers provides a clamp force across the bearing cones and assists in preventing cone rotation on the spindle which reduces associated wear.

## **LONG LIFE FRICTION DISCS**

The friction material is carbon based with outstanding heat dissipation and heat resistant properties. The friction discs improve the brake life and maximize value realized from wheel group components and reduce brake maintenance costs. The brake life is better matched to the life of the wheel group components (i.e. bearings and gears) and the friction discs prevent wheel groups from being disturbed mid-life to change out a worn brake.

## **BEARING DESIGN AND SPECIFICATIONS**

H-E Parts bearings are designed using:

- Premium clean steel for long fatigue life.
- Finishes that reduce the incidence of thin film lubrication and increase life.
- Textured rollers that further improve oil film thickness.
- Surface treatments that provide debris resistance.
- Crowning that distributes load more evenly.

## **ISOLATION SEAL**

When fitted to both wheel groups the isolation seals effectively divide the rear axle into three separate compartments. This separation eliminates cross contamination between the wheel groups and the differential. A failure in an axle compartment is confined to that compartment and will not damage the rest of the driveline components. The separation allows oil samples and magnetic plug samples to be more meaningful as they reflect the condition of the sampled compartment only.

## **CONTAMINATION GUARD**

Designed for the rear wheel groups, this assembly consists of a series of 'super magnets' positioned inside the end of the wheel hub and two metal plates that are attached to the anchor gear and wheel hub. The plates form a labyrinth arrangement that allows oil to pass but keeps any wear particles generated in the planetaries away from the wheel bearings. The super magnets collect wear debris out of the oil and the labyrinth arrangement keeps wear debris from the planetaries away from the wheel bearings while keeping oil around bearings at high speeds.

## **HARDENED SPACER**

The hardened spacer is splined to the spindle to prevent movement and provides a hard surface behind the outer bearing cone in the rear wheel groups. The hardened spacer has an anti-fretting surface treatment and minimizes wear or fretting on the anchor gear. This reduces the likelihood of wear particle contamination and maintains bearing pre-load while improving the overall wheel bearing life.

## **GEAR DESIGN AND MANUFACTURE**

Gears are designed with crowning, tooth tip and root profile modifications to eliminate interference and optimize tooth contact under load. Proprietary designed software developed in-house is used for determining gear geometry and calculating gear rating/capacity to ensure the gears are manufactured to the highest required specifications.

# CAT REAR WHEEL GROUP

## Birrana™ Brake Wear Gauge

- Easy and fast brake wear measurement.
- Reduced down time.
- Prevent oil spills and contamination.
- Improve safety.

Birrana™ plugs (BEST plugs) facilitate rapid magnetic plug monitoring without oil spills and reduces truck down time.

High performance, long lasting brake components.

## Birrana™ Control Fit System

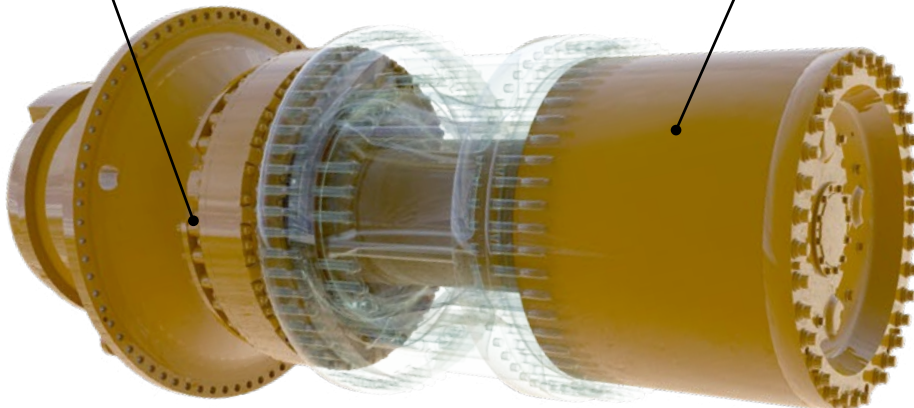
- Extends wheel-group component life, increasing equipment availability.
- Maintains wheel bearing preload for entire component life.
- Lengthens maintenance cycles.

Engineered repairs and re-manufacturing of major components keep rebuilds economical while providing excellent reliability.

# KOMATSU REAR WHEEL GROUP

Proprietary parts provide improved service life and performance.

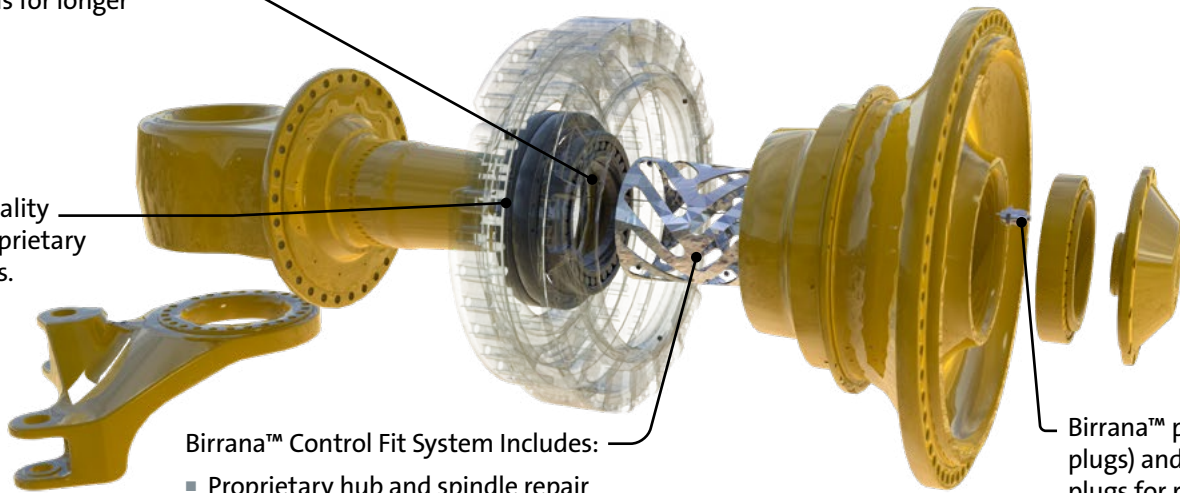
Engineered repairs to major components provide excellent reliability.



# BIRRANA™ FRONT WHEEL GROUPS

Innovative sealing solutions for longer life.

High quality and proprietary bearings.



Birrana™ Control Fit System Includes:

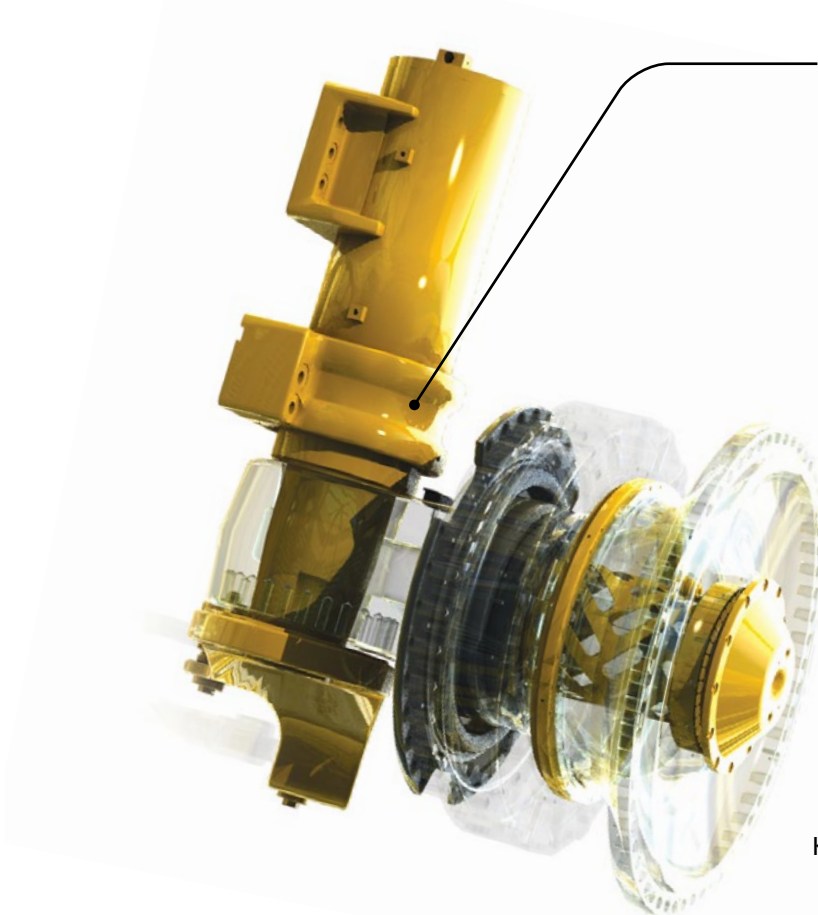
- Proprietary hub and spindle repair process.
- Custom bearings.
- Flexible spacer.

Birrana™ plugs ( BEST plugs) and oil sampling plugs for rapid spill-free condition monitoring.

Komatsu front wheel group shown.

# BIRRANA™ FRONT CORNER GROUP

Proprietary engineering standards of major components keep remanufacturing costs economical.



Komatsu front corner wheel group shown.



# WHEEL GROUP SERVICE EXCHANGE

## WHEEL GROUP REBUILD

H-E Parts has achieved millions of maintenance free hours on wheel group rebuilds operating in mines around the world. H-E Parts have specialist facilities in multiple locations for the complete remanufacture of wheel groups. In most cases our proprietary methods allow severely distressed components to be remanufactured, often better than new. Complete control of the rebuild process, tight standards, high performance components and special innovations provide increased wheel group reliability.

## WHEEL GROUP REPAIRS

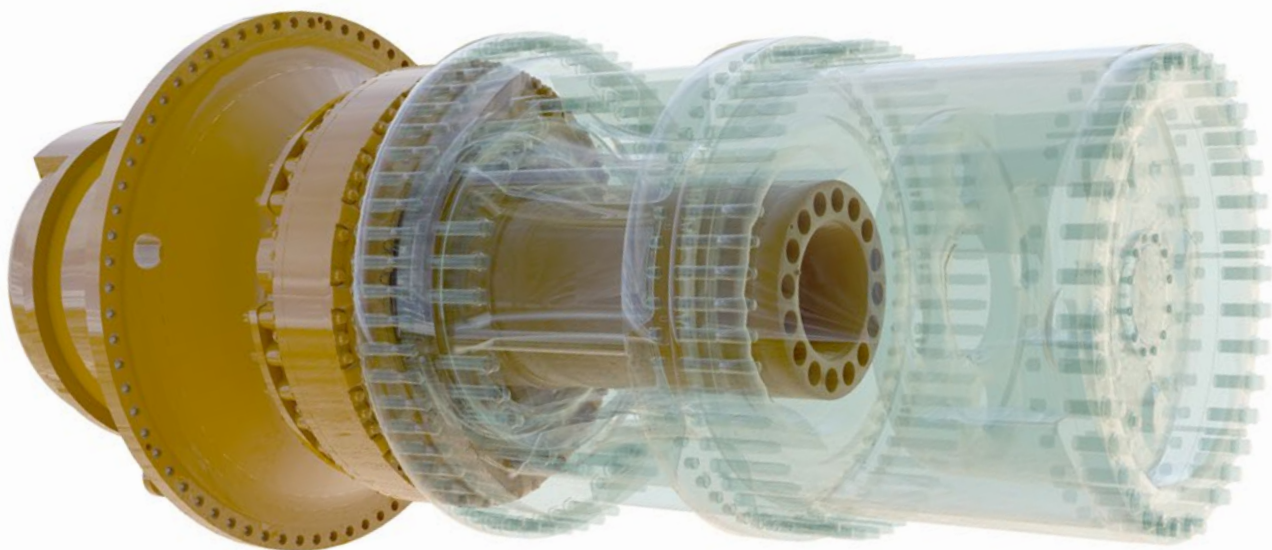
H-E Parts offers complete re-furbished wheel groups for front and rear wheel groups. With our proprietary methods, H-E Parts is able to give new life to severely distressed wheel group components. Innovative upgrades and continuous improvements to the product performance have proven to lower cost per ton and keep equipment running longer. H-E Parts remanufactures most wheel group components back to servicable conditions.

Our engineering team offers the following services and support for front and rear wheel groups:

- Assistance in the installation process.
- Participation in the analysis of oil sample reports.
- Design.
- Finite Element Analysis (FEA) simulation and reporting.

## WHEEL GROUP SERVICE EXCHANGE

At H-E Parts, we work to achieve minimal downtime for our customers by stocking an extensive range of service exchange products including sub assembly components, whilst also offering a repair and return service which is backed by a large range of our own proprietary and standardized parts. This gives us the ability to provide a rapid turnaround, regardless of external market influences on spare parts at any given time.



# ADVANCED COOLING SYSTEMS

H-E Parts COR Cooling™ (COR Cooling), manufactures and supplies high quality, innovative products that can also be tailored to our customers' specific requirements. Our in-house engineering, product and service offerings, guarantee we support customers throughout the full product life cycle while working to award the end user with the lowest total cost of ownership.

Heating and cooling solutions include:

- COR Cooling™ bar and plate coolers
- Industrial radiators repair and servicing
- Heat exchange solutions
- Industrial fans and housings

## INCREASED PRODUCT LIFE

The fully welded COR Cooling aluminum bar and plate configuration is a robust solution to many cooling applications, offering resistance to corrosion, damage from debris and a fully serviceable cooler.

Large coolers or coolers subject to vibration, typically seen in mining and heavy industrial applications, can suffer from issues with structural integrity. To overcome these issues H-E Parts uses a combination of corner blocks and expansion joints.

## IMPROVED COOLING PERFORMANCE

By designing solutions using aluminum we take advantage of the superior cooling performance of the material, resulting in improved cooling performance within the same space constraints. Our range of custom fin designs provides solutions to air flow issues that affect cooling performance.

## SERVICE EXCHANGE

Although the cost of repairing an item is often lower than the price of a new part, the time taken to repair the item can be an issue. In order to address this, H-E Parts offers a service exchange program that provides substantial reductions on the price of new or reconditioned parts, based on the relative condition of returned items. Where long-term security is required for critical items, H-E Parts offers formal service exchange agreements that ensure an agreed level of available stock is kept in reserve for your site at all times. With a large range of wheel groups, differentials, engines and cooling equipment available on an exchange basis, H-E Parts can keep your fleet running and avoid the costs associated with downtime.

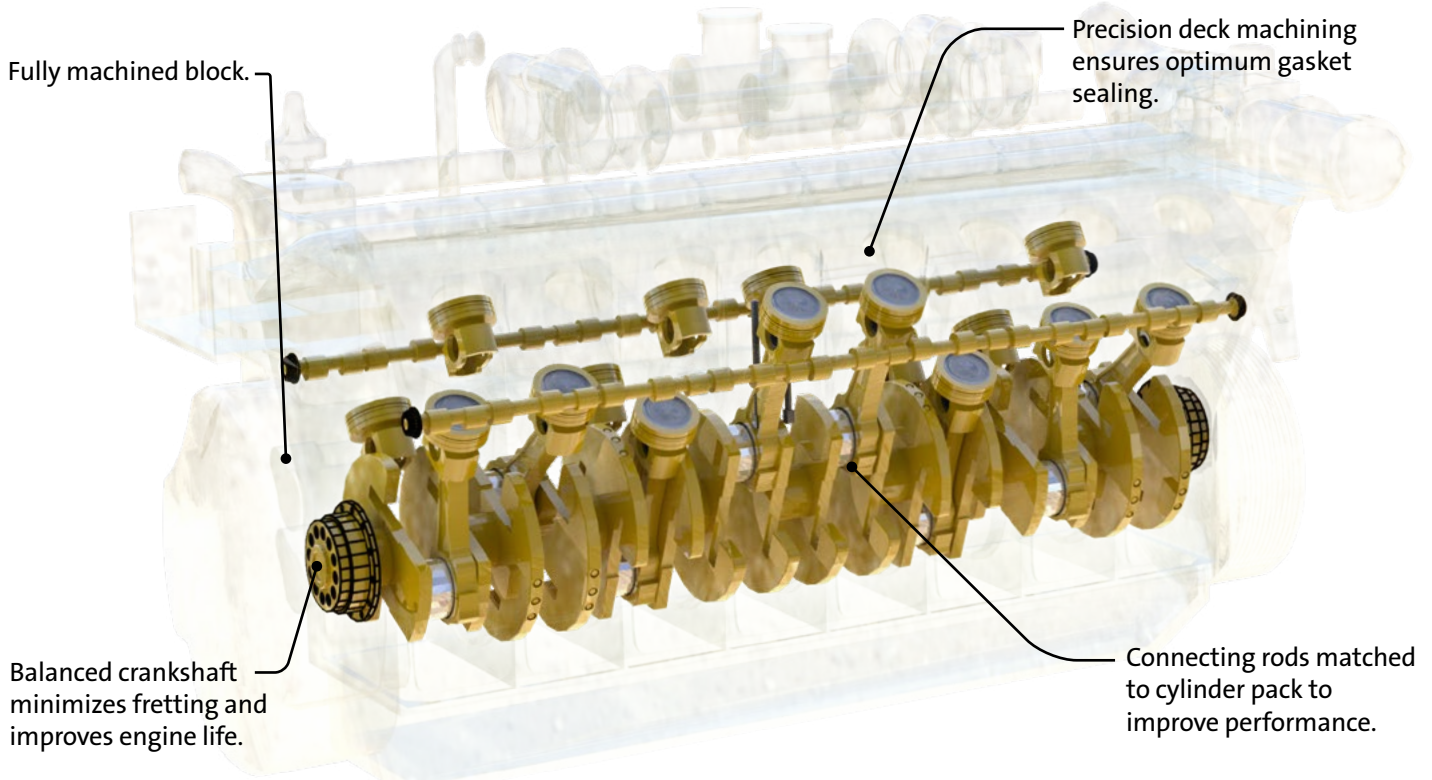
## SERVICE AND REPAIR

At H-E Parts we specialize in the supply and maintenance of all types of radiators. We service, overhaul and re-core the full range of heat transfer equipment from a range of industries and applications, offering rapid turnaround service and repair of mining, heavy industrial and transport heat transfer equipment ensuring easy access to specialist services.



# ENGINE SOLUTIONS

H-E Parts provides world class industrial heavy diesel re-manufacturing services to a range of industries. We are considered a global leader in the heavy diesel engine rebuilding and component machining.



## ENGINE SOLUTIONS CAPABILITIES

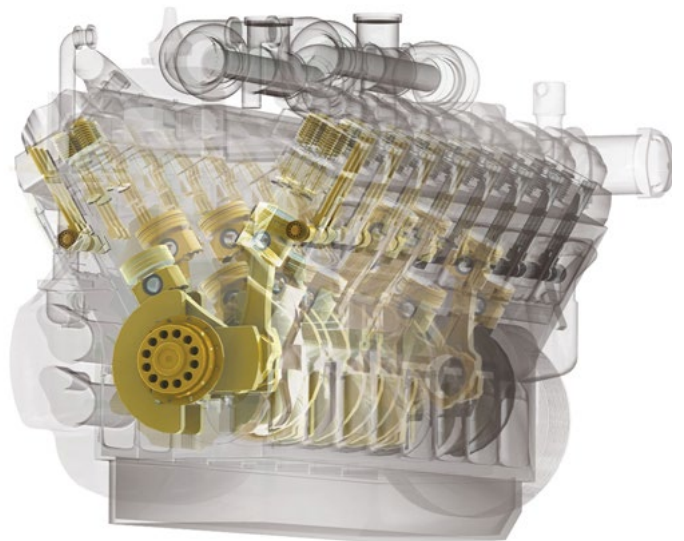
Our dedication to quality and precision ensures that every one of our remanufactured diesel engines runs like new. Complete reconditioning services include:

- Balancing
- Honing
- Crack testing
- High performance engine testing
- Re-manufacturing

Our engine assembly facilities are equipped to recondition mine specification engines, but also services a broad array of industrial diesel engine markets including construction, marine and stationary power plants. H-E Parts offers both service exchange engines and a repair and return service option, whereby a customer's engine can be remanufactured to their specific requirements.

## PARTS DEPARTMENT

Our parts department is focused on high horsepower diesel engines. We supply exchange engines, components such as turbos, injectors, cylinder packs, cylinder head replacement parts, coolant inhibitors and air starters.



# CYLINDERS

H-E Parts cylinders are inspected, repaired and remanufactured to our own engineering specifications. Proprietary tooling and repair procedures are used to help ensure rapid turn-around times and long-life rebuilds. All H-E Parts cylinders undergo rigorous testing before, during and after the manufacturing process. Additional services include:

- Chrome plating
- HVOF (high velocity oxygen fuel)
- Grinding and polishing
- Machining
- Fabrication
- Surface finish analysis
- Alternative coating
- Failure analysis
- Assembly and testing



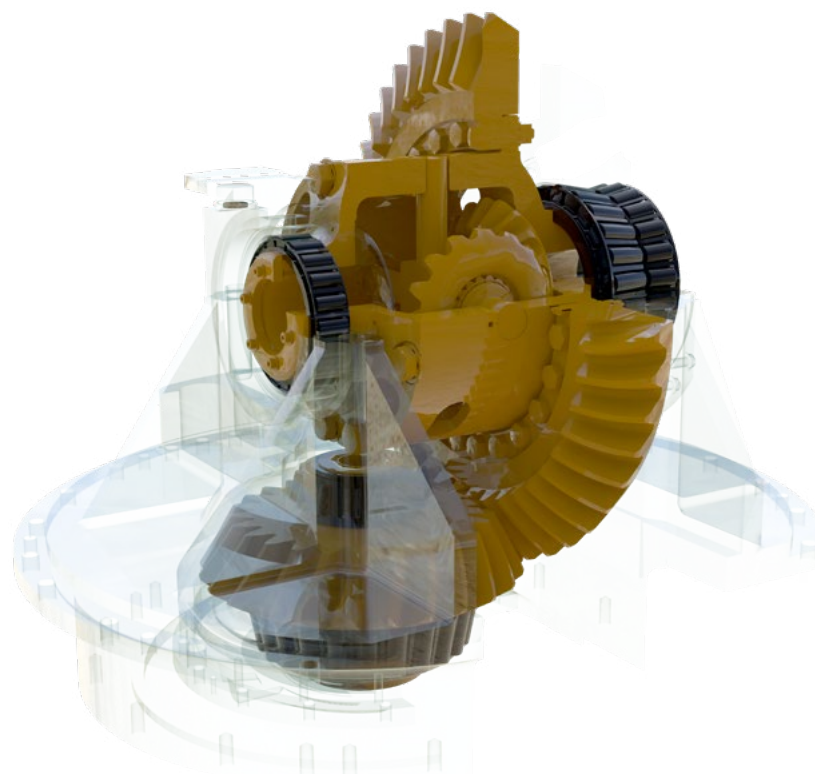
# DIFFERENTIALS, TRANSMISSIONS AND TORQUE CONVERTERS

H-E Parts differentials, torque converters and transmissions are inspected, repaired and remanufactured to the highest industry standards. Proprietary tooling, setup procedures and bearings are used to help ensure rapid turn-around times and long-life rebuilds.

H-E Parts differentials leave our premises:

- Fully inspected (with detailed condition reports produced)
- Critical parts are independently crack tested by certified providers
- Rebuilt and set up to our own proprietary procedures in conjunction with using our own proprietary tooling

Service exchange components are available or components can be remanufactured, ensuring a rapid turnaround.



# CUSTOMER EXPERIENCE

H-E Parts provides the same responsive service to all customers, whether it's a small contract or a large multinational company. This ensures our clients know what to expect from us, and can rely on quality products with unrivalled service support to get the job done - on time, on budget and with zero harm.

With a large client base over a variety of industries, it is our ability to deliver on our promise to work with suppliers and customers to extend service life, reduce downtime, and work to a high standard that sees our customer base grow exponentially every year.



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# H-E PARTS, GLOBAL LOCATIONS, FOR GLOBAL SOLUTIONS.



H-E Parts International replacement parts are compatible with the makes and/or models of the third-party equipment described. H-E Parts International is not an authorized repair facility of these third parties and it does not have an affiliation with any manufacturers of these third-party products. All brands, original equipment manufacturer (OEM) part numbers or references are owned by the respective OEM entities or their affiliates. These terms are used by H-E Parts International for identification and cross reference purposes only and are not intended to indicate affiliation with, or approval by the OEM, of H-E Parts International or its products.



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