

INNOVATION.  
NOT DUPLICATION.™



ENGINE SOLUTIONS

## DIVISION OVERVIEW





# DIVISION OVERVIEW

H-E Parts International Engines Solutions (H-E Parts) is committed to enhancing industrial engines to afford the end user a reliable, efficient, and better performing engine. H-E Parts supports the customers complete drivetrain and engine requirements through our Mining and Engine Divisions.

Our global teams work collaboratively to ensure engines and complete drivetrains perform in sync and to the best standards possible through shared technology, information, and innovations.

## OUR MISSION AND CUSTOMER PROMISE

Our mission is to supply customers with the highest quality replacement parts, components, and services that improve lifecycle 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 service through an empowered, talented, and responsive team. We will provide a safe, productive, and supportive workplace that attracts and retains the best employees possible.

## CORPORATE OVERVIEW

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 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 award 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.

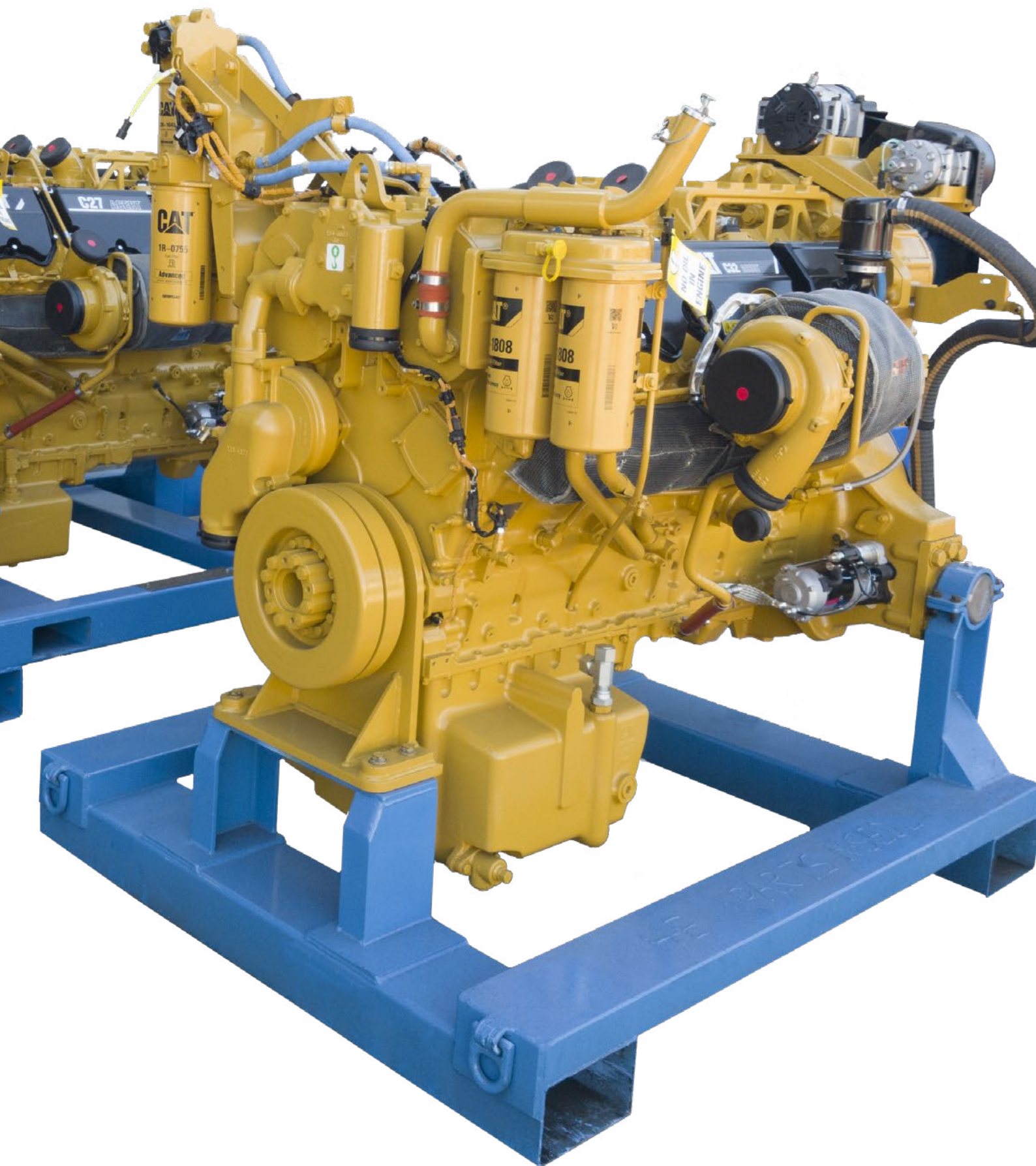
Our “See You Tomorrow” philosophy is underpinned by a set of beliefs, behaviors and key safety promises that drive positive safety outcomes.

## 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.







# ENGINE SOLUTIONS

H-E Parts provides world class industrial diesel re-manufacturing services to the mining, stationary power, and oil and gas industries. Our dedication to quality and precision ensures that every one of our diesel re-builds runs like new.

Complete reconditioning services include:

- Balancing
- Magnaflux / crack testing
- Engine testing

## Fully Machined Block

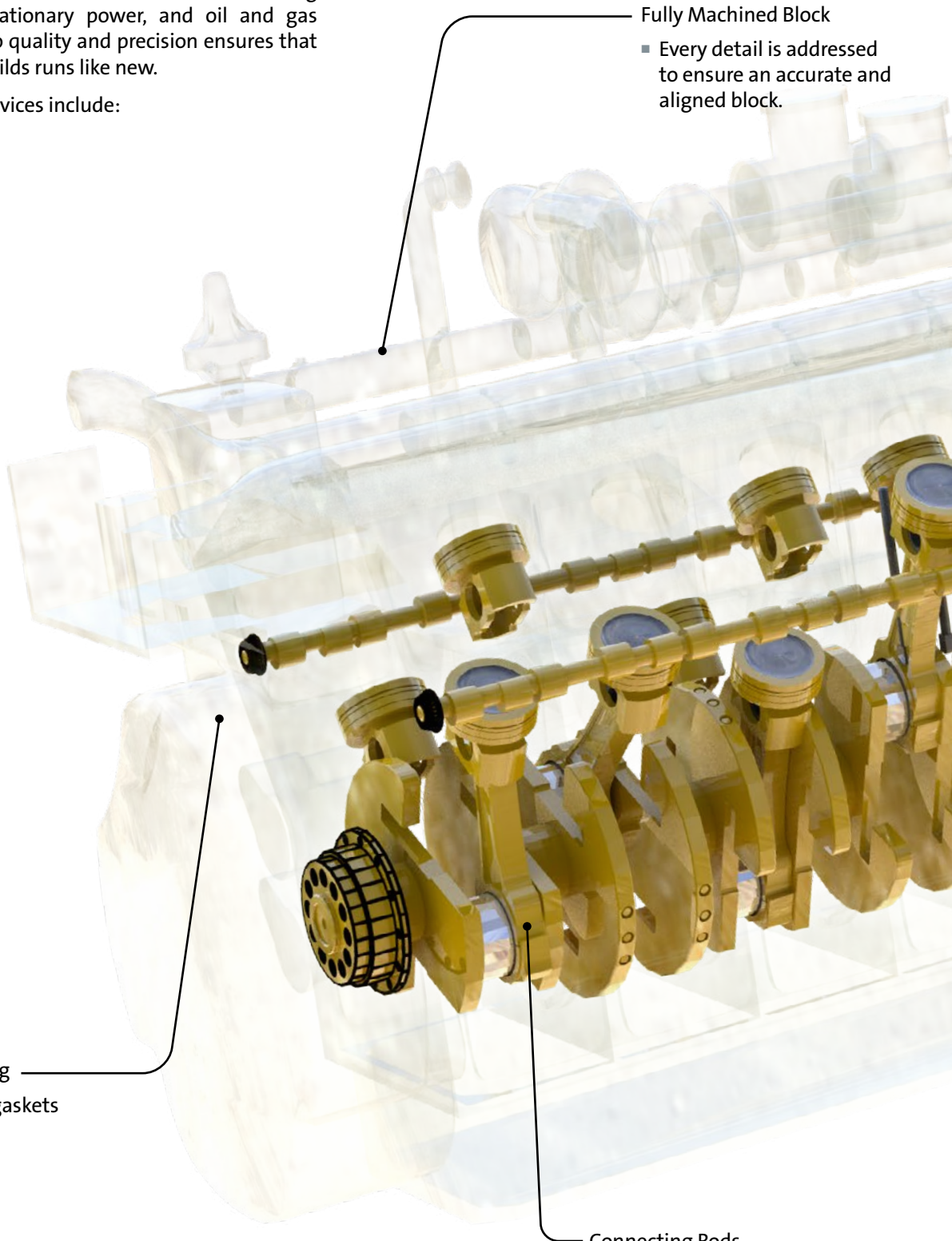
- Every detail is addressed to ensure an accurate and aligned block.

## Precision Deck Machining

- Proper finish ensures gaskets adhere and seal.

## Connecting Rods

- Matched cylinder pack to improve performance.





#### Balanced Crankshaft

- Minimizes component and equipment wear, extends engine life, which equals reduced running costs.

### H-E PARTS ADVANTAGES

- Separate facilities for engine teardown and assembly, preventing cross-contamination.
- All new and replacement parts meet or exceed stringent OEM specifications.
- Multi-point quality control process — every engine re-build receives quality assurance inspection and testing at every phase of the re-build, from first teardown to final assembly.
- Close personal attention to component detail means the optimum within the tolerance range is achieved.
- Proprietary balancing reduces leaks, premature parts failures from vibration and improves equipment availability.



# MACHINE SHOP SERVICES

H-E Parts machine shop services include:

- Balancing
- Camshaft re-profiling
- Connecting rod re-conditioning
- Cylinder pack assembly
- Crankshaft re-conditioning
- Cylinder block machining
- Head machining
- Crack detection
- General machining
- Custom shop services that ensure your engine is reconditioned to the highest standard of quality

H-E Parts is continuously upgrading and investing in the most-advanced equipment and systems available to remain a leader in diesel engine supply and repair. The use of separate engine disassembly and assembly facilities eliminates problems related to cross-contamination that can result in premature component failure.

## INSPECTION

Magnetic particle inspection is a form of non-destructive testing that we use to verify that a ferrous component is not cracked or damaged during its service life.

We rely on this method for all of the ferrous components in our remanufactured engines. This includes crankshafts, counterweights, connecting rods and gear-train. This process ensures that we detect defects early in the remanufacturing process.

## EQUIPMENT BALANCING

H-E Parts has custom built balancing equipment designed specifically for high horsepower industrial engines. This equipment allows us to verify the balance of the crankshaft assembly as well as make improvements to optimize engine balance.

Our technicians balance every crankshaft that is destined for life in one of our remanufactured engines – this is standard procedure for our in-house product. This extra step provides assurance that every engine produced by our assembly facility operates smooth and trouble free.

The custom bobweights, computerized technology, and solid base rigidity of these purpose-built machines enable us to balance to the most stringent specifications.







# CYLINDER HEADS

H-E Parts cylinder head departments utilize the latest equipment for better production and accuracy. Utilizing this equipment means H-E Parts is able to cut all three seats in one pass while maintaining the ideal concentricity level. This provides an excellent seat for the valves to seal against.

The equipment used produces exact roughness average (Ra) consistently across the surface of the cylinder head.

One of the added benefits of H-E Parts' seat and guide tooling is that we can vacuum test the finished product prior to assembly, a process that ensures quality and saves time.

## CYLINDER HEAD SERVICES

- Resolve uneven surfacing
- Consistent gasket sealing finish
- Center cylinder head to exhaust surface dimension
- Dimensionally match mated per bank
- Exhaust manifold repair and surface
- Parallel to cylinder head
- Minimal material removed

# CYLINDER BLOCKS

Cylinder blocks must pass a 95 point inspection. All critical cylinder block areas are Portaflux inspected. Machining is accomplished in one of our CPU controlled work stations with .0001" (0.00254 mm) repeat-ability.

Machining is accomplished using the latest cutting technology, eliminating the possibility of heat distortion while re-establishing critical surface finishes.



# CAMSHAFTS

Camshaft geometry is the heart of how an engine runs. Restoring lift, duration and timing are essential aspects of the camshaft remanufacturing process.

## RE-PROFILING PROCESS

Proper lift and duration is restored to camshaft lobes with dedicated grinding machines using precision made masters fabricated at our facility. An essential step in engine rebuild due to high load factors of today's engines. H-E Parts Engine Solutions takes every step to ensure camshafts perform as new.

# PARTS DEPARTMENT

H-E Parts global locations can provide assistance with parts for heavy diesel engines such as:

- Shortblocks, longblocks, and complete engines
- Connection rods (and cylinder packs)
- Engine parts and overhaul kits
- Coolant inhibitors
- Air starters
- Cylinder heads
- Engine blocks
- Camshafts
- Crankshafts
- Exchange engines and components

These parts can be purchased as part of our service exchange or outright. H-E Parts understands the need for parts in a timely manner, which is why we maintain strong and collaborative relationships with our suppliers to reduce downtime for our customers.





# CONNECTING RODS

H- E Parts has the finest connecting rod equipment available. Rods are Magnaflux then dimensional inspected with all findings recorded. New bushings are installed, load tested and machined to precise center to center bore dimensions.

## RECONDITIONING CONNECTING RODS

Reconditioning our own connecting rods gives us opportunity to customize cylinder packs. Rods and pistons are matched based on their reciprocating weights in our exchange engines, short blocks and long blocks. Proven Engine Solutions department standard procedures ensure high quality, every connecting rod, every time.



# CRANKSHAFTS

A signature of H-E Parts Engine Solutions is our crankshaft department. OEM's have often come to Engine Solutions to develop repair and reconditioning strategy for their crankshafts.

A multi-part inspection is performed on every crankshaft including: magnaflux, rod and main journal diameters, radius size and condition. straightness, hardness, front and rear seal areas, snout and flywheel hub condition, bolt & dowel holes and counterweight pads. Gears and counterweights are also thoroughly inspected.

## CRANKSHAFT FINISHING

- Correct radius
- Polished or ground mid to high side of specification
- Proper surface finish is verified (Ra)
- Complete final inspection report

# ENGINE RE-CONDITIONING AND TESTING

H-E Parts has the facilities, tooling, expertise to recondition and dynamometer test large industrial engines up to 4,200 horsepower.

All engines rebuilt at our facilities are dynamometer tested to ensure they perform per OEM specifications prior to customer delivery. Every step is taken during the rebuilding process to ensure we deliver the best possible product for a long, dependable life.

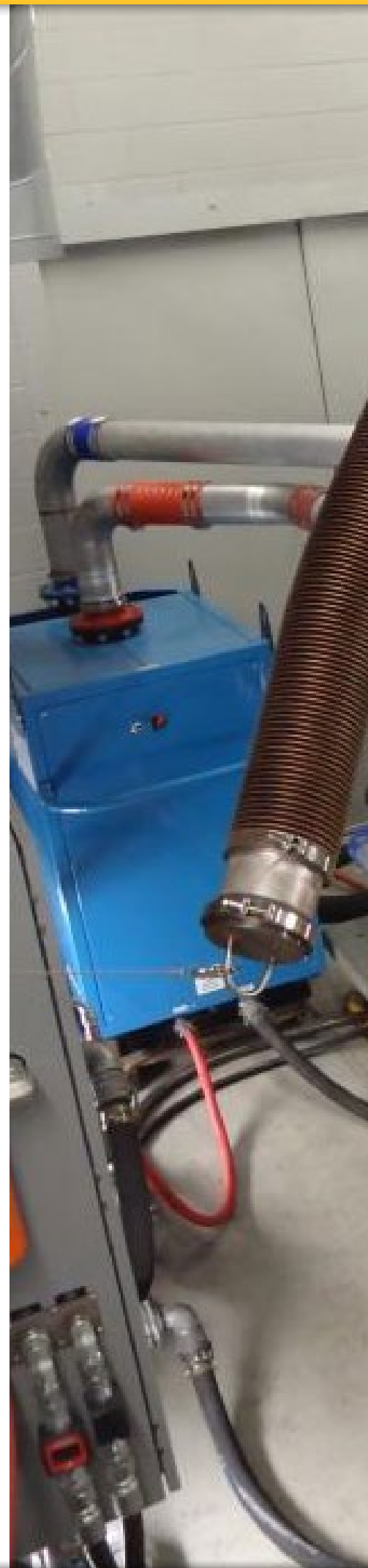
## SERVICE EXCHANGE

At H-E Parts, we work to achieve minimal downtime for our customers by stocking an extensive range of service exchange products. This gives us the ability to provide a rapid turnaround, regardless of external market influences on spare parts at any given time.

## 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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