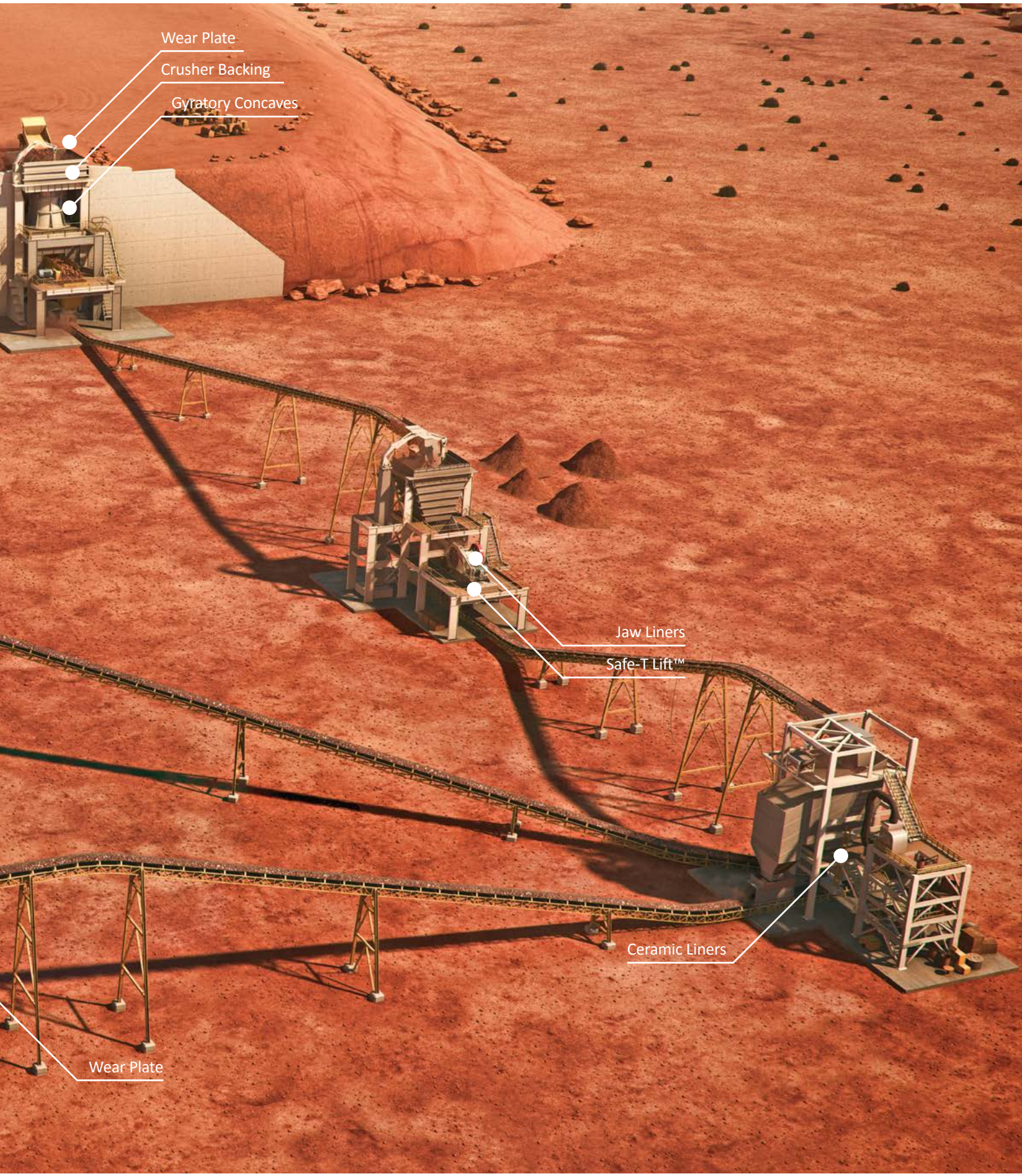
INNOVATION.
NOT DUPLICATION.™

H-E PARTS INTERNATIONAL

CRUSHING SOLUTIONS

WEAR SOLUTIONS

H-E PARTS INTERNATIONAL (H-E PARTS) SPECIALIZES IN WEAR MANAGEMENT SOLUTIONS THROUGH ITS INDUSTRY LEADING RANGE OF CME™ WEAR PRODUCTS, COMPONENTS AND LIFTING DEVICES, BUT DOESN'T JUST RELY ON EXCEPTIONAL PRODUCTS TO PROVIDE SUCCESS, RATHER IT COUPLES THIS WITH INTERNALLY DEVELOPED LINER MANAGEMENT PLANNING, APPLICATION SPECIFIC PERFORMANCE MEASURES, ENGINEERED SOLUTIONS AND BEST IN CLASS SERVICE PARAMETERS TO ALLOW OUR CUSTOMERS TO REALIZE OUR BUSINESS PROMISE OF PROVIDING 'INNOVATION NOT DUPLICATION™'. THIS PHILOSOPHY POSITIONS H-E PARTS AT THE FOREFRONT OF WEAR MANAGEMENT IN THE MINING, QUARRYING AND MINERALS PROCESSING INDUSTRIES GLOBALLY.


Wear Plate
Crusher Backing
Gyratory Concaves
Jaw Liners
Safe-T Lift™
Ceramic Liners
Wear Plate

EFFICIENTLY PROCESSING ORE AND AGGREGATES REQUIRES MORE THAN TRIALLING A SINGLE SET OF LINERS ON A SINGLE CRUSHER OR FINDING THE SUPPLIER WITH THE LOWEST COST PER KILOGRAM.

IT REQUIRES LOOKING AT THE WHOLE COMMINUTION PLANT FROM THE PRIMARY CRUSHER, CONE CRUSHERS, GRINDING CIRCUIT AND ALL THE WEAR COMPONENTS IN BETWEEN, TO EFFECTIVELY EVALUATE THE TOTAL COST OF OWNERSHIP OF YOUR ASSETS.

While there will always be something to gain in improving the performance of a single machine, the benefits of developing liner management policies covering a full circuit are often far greater. Because H-E Parts can supply liners for all stages of the crushing process, compatibility between crushing stages can be considered in more detail to provide a more measurable total cost of ownership.

For example, there are limited gains from making a set of secondary crusher liners last seven months when major shutdowns occur every six. Similarly, increasing primary crusher tonnage at the expense of crushed product size is likely to have a negative effect on SAG mill performance.

H-E Parts approach is to look at the whole crushing process from start to finish, and then consult with all mine stakeholders to develop a solution that works for all involved.

H-E Parts provides a full range of wear management products covering the world's largest gyratory crushers, SAG and ball mills, jaw crushers, cone crushers, wear materials and associated lifting devices. Complementing our internal manufacturing capabilities, our supply network consists of some of the best manufacturers in the world, giving users full confidence that H-E Parts wear products will last first time, every time.

By incorporating existing or desired operating and maintenance regimes for the crusher or plant, with the specific characteristics of the ore being crushed and the financial constraints placed on the business, H-E Parts is able to assist its customers in determining their most cost-effective liner management policy.

CME™ CRUSHER LINERS

H-E Parts has built a reputation on the reliability and performance of its CME™ range of manganese crusher liners, which are designed to be fully compatible with H-E Parts variety of lifting devices that ensure safety and efficiency are achieved in all service functions.

This reputation carries on to H-E Parts flagship MnElite™ grade of manganese wear products, which typically result in a 35% improvement over lower grades of materials. While this alone is an impressive achievement, it is only a starting point as H-E Parts can normally achieve improvements well beyond a simple extension in liner life - whatever the grade of manganese.

H-E Parts liner development program provides customers with application-specific performance at the lowest total operating cost by matching the optimum profile with the most appropriate grade of manganese steel chosen from one of the following ranges:

MNELITE

H-E Parts range of 20-24% manganese steels; the hard-wearing long-life product that is the current benchmark for high performance wear products.

MNPREMIUM

H-E Parts range of 18% manganese steels that provide a balance between product life and overall cost and is differentiated from the MnStandardTM range due to its metallurgical content, manufacturing process and heat treatment.

MNSTANDARD

H-E Parts range of 14-18% manganese steels that provide a low-cost option for applications where wear rates are relatively low or where MTTR is not a significant factor.

Within each product range, H-E Parts can provide purpose-built modified grades to better suit individual requirements; Super Heavy Duty, High Toughness or Extended Life.

For most suppliers, selecting the right liner for a specific application is to duplicate the OEM design. If requested, H-E Parts can also supply OEM equivalent designs; however, H-E Parts innovative approach to liner development has consistently demonstrated that the correct liner for a given site is one that has been designed specifically for the application.

By adopting a holistic approach and integrating liner management policies with site specific operating and maintenance practices, crusher liner problems are reduced,

freeing up resources for other important jobs and reducing total operating costs.

GYRATORY CRUSHER LINERS

H-E Parts designs and manufactures gyratory concaves in manganese steel and liquid quenched Ni-Cr-Mo steels that have been proven to provide longer, more consistent life than most common air-quenched concaves, with far less risk of failure that can be encountered with white irons.

Before manufacturing a gyratory liner set, H-E Parts engineers evaluate each individual application and provide a purpose-built design that will produce the desired performance across the full concave life, with consistent life and performance from each mantle. By adopting a site-specific approach, H-E Parts is often able to provide concave life increases more than 50%, without the use of high-risk white irons.

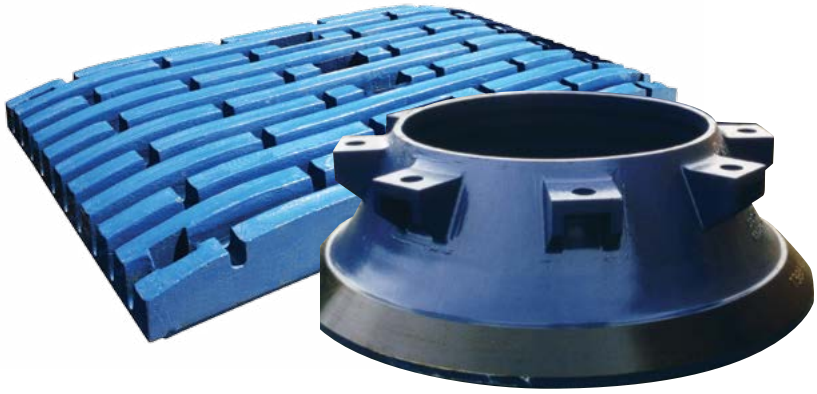
H-E Parts has long been recognized as a pioneer in developing the concept of fully corrugated mantle designs, and in some applications has been able to achieve decreases in power draw of around 20%, with a similar increase in tonnage. However, this is not a solution that will suit all users, and, in many cases, a more conventional smooth mantle design will suffice.

INNOVATION

Arguably the most innovative liner supplier in the world.

Some of H-E Parts innovations include:

- Flow controlled feed plates and chamber designs.
- Power-controlled tertiary cone crusher liners.
- Fully corrugated primary crusher mantles.
- High tonnage / decreased power draw gyratory liner sets.
- Self-hardening jaw crusher tooth designs.
- Extended chamber gyratory and jaw crusher designs.
- Full range of lifting devices for all cone, jaw, bowl and gyratory liner applications.



CRUSHER BACKING

H-E Parts offers a range of crusher backing compounds to accommodate temperature extremes and rapid and extended setting times. This liquid epoxy grout is used for backing crusher parts, grouting machinery, locking bearings, setting anchor points and chocking of machinery.

H-E Parts supplied crusher backing is the ideal crusher backing for all types of liners, including segment style wear liners, which are used in large primary gyratory crushers.

The crusher backing range can be supplied in the following varieties;

STANDARD

A high impact crusher backing that has high tensile, compressive strengths and rapid curing times.

EASYPOUR

Easypour has a lower viscosity allowing faster cavity filling.

ACCELERATOR

Decreases curing times dramatically to minimize crusher downtime.

CRUSHER BACKING 57

In hot climates, some products can harden before filling liner cavities properly. Crusher backing 57 has a lower viscosity allowing faster cavity filling.

LOW SHRINKAGE

Offers a lower shrinkage ratio to decrease cracking in large cavities.

BUSH LOCK

Can be used for all bush locking applications.

LIFTING ASSEMBLIES FOR CRUSHER LINERS

H-E Parts prides itself on not only providing industry benchmark crusher liners, but also the safest lifting assemblies for quick, reliable safety excellence.

CONE CRUSHERS

LOCKLIFT™ MANTLE LIFTING SYSTEM

H-E Parts LockLift™ range of mantle lifters are utilised with H-E Parts CME™ range of crusher liners to allow the liner to be lifted through the centre hole of the mantle after the head nut is removed. All styles utilise a jacking arrangement to separate the head and mantle before lifting, to ensure that a fully controlled lift takes place and that the lifting gear is not overloaded by lifting the head along with the liner.

Furthermore, LockLift™ assemblies are designed with a wear indicator to allow technicians to risk assess lifts, and also include a locking pin to ensure that a physical connection is always maintained between the mantle and lifting device, to safeguard operation by ensuring the LockLift™ device cannot disengage prematurely.

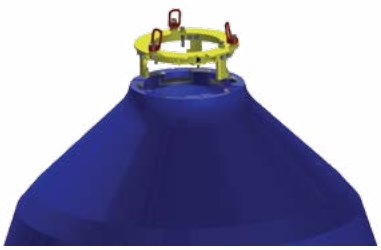
H-E Parts has developed a LockLift™ to suit all styles of crushers, with varied designs between machine styles. A few common machines are shown on the following page.

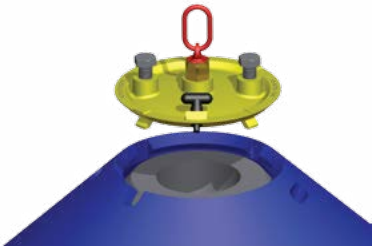
JAW CRUSHERS

SAFE-T LIFT™

Developed by H-E Parts, the Safe-T Lift™ is a captive lifter that locates into a specially cast hole in the jaw. The lifter is inserted into the jaw at 90 degrees to the axis of the jaw, and then turned upwards to lock it into place. All this can be done without entering the crushing chamber.

The Safe-T Lift™ is designed to allow jaws to hang at the exact jawstock angle, making installation easier and safer.





"H-E PARTS HAS DEVELOPED THE LOCKLIFT™ TO SUIT ALL STYLES OF CRUSHERS"

LOCKLIFTS™ TO SUIT OEM-COMPATIBLE CRUSHER LINERS

- Nordberg / Metso HP.
- Nordberg / Metso MP.
- Cedarapids ElJay.
- Allis / Sandvik.
- Gyratory lower mantles.
- Gyratory upper mantles.
- Symons STD.
- Symons SHD.
- FLSmidth.
- Jaques.
- Kawasaki.
- Trio.
- Various other styles.

WEAR PLATE

H-E Parts can offer a full suite of wear plate products from our CME™ range and provide material selection and condition monitoring services to improve the likelihood of wear liners lasting to planned shutdowns. This is done by analysing localised wear over a set of wear liners, and then selecting material grades and thicknesses based on actual wear rates and required life. The result is a liner set that may contain a combination of the following materials:

- Chromium carbide overlay wear plate.
- Tungsten and titanium carbide plate.
- Quenched and tempered plate.
- White iron wear bars, blocks and buttons.
- Rubber / polyurethane embedded ceramic liners.

CERAMIC LINERS

H-E Parts can supply a full range of CME™ ceramic wear liners to suit site specific applications, with engineering to suit site specifications.

Ceramic solutions are becoming more common in hard rock applications because they have been proven to provide increased productivity, enhanced wear characteristics, improved flow efficiency, noise reduction and a lower total cost of ownership.

Ceramic liners offer an alternative solution to weld overlay and quenched and tempered wear plates and other lining materials particularly in highly abrasive applications.

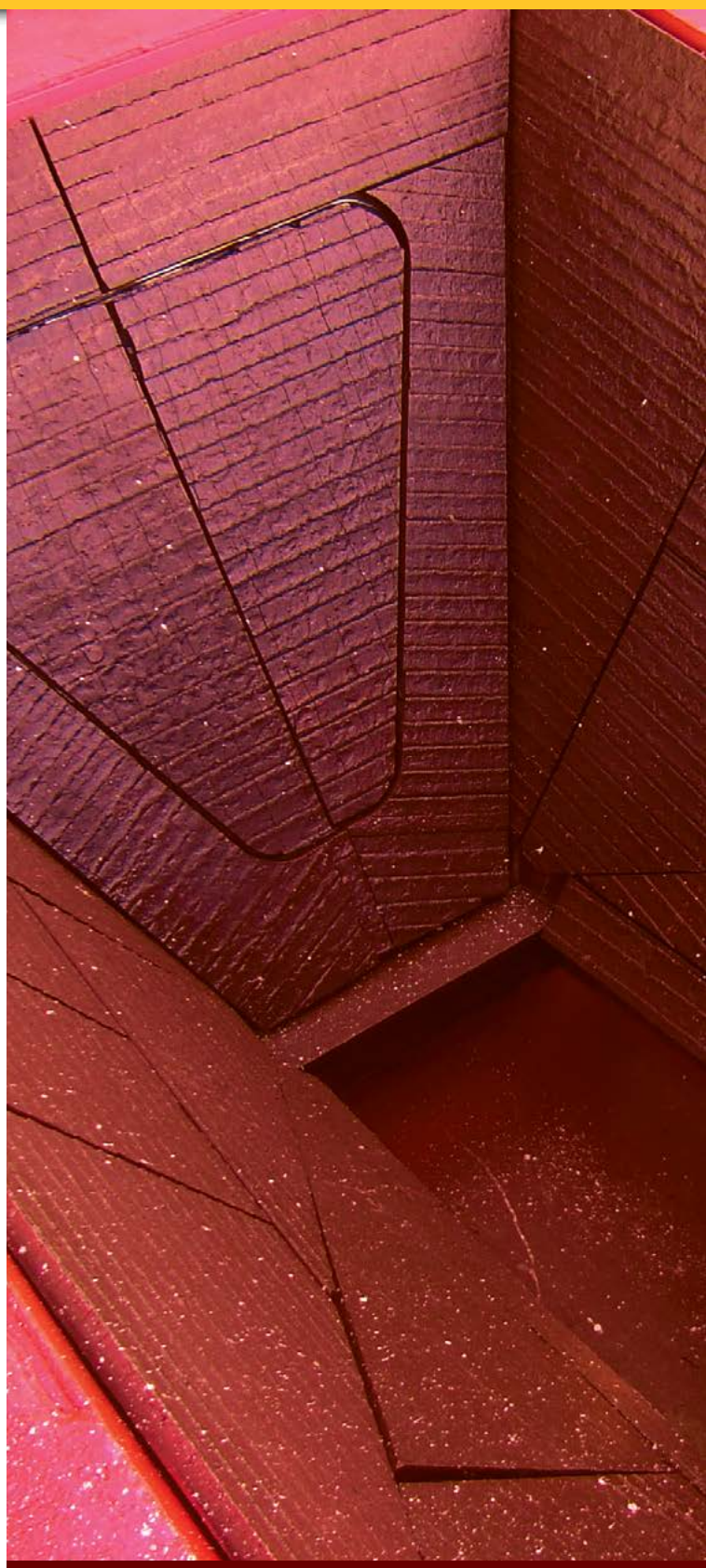
Manufactured in standard sizes for specific customer requirements and designed to fit all appropriate applications. CME™ ceramic wear liners are particularly suitable for many applications within bulk minerals processing equipment including:

- Chutes.
- Deflectors / impact plates.
- Bins/hoppers.
- Skirt liners.
- Stackers and reclaimers.

With the addition of ceramics, H-E Parts can offer a full suite of wear materials. Combined with our in-house engineering, manufacturing and service support, H-E Parts can recommend and supplying the most beneficial solution for any given processing application that will extend life, improve reliability and reduce cost.

ABRASION & IMPACT RESISTANT

CME™ ceramic wear liners are designed for maximum resistance to impact and abrasion for use in many bulk materials handling applications, with specific focus on hard rock applications.



"H-E PARTS IS ABLE TO OFFER A FULL SUITE OF CME™ WEAR PLATE PRODUCTS, AND PROVIDE MATERIAL SELECTION AND CONDITION MONITORING SERVICES TO IMPROVE THE LIKELIHOOD OF WEAR LINERS LASTING TO PLANNED SHUTDOWNS."

SIZERS

H-E Parts supplies a comprehensive range of sizer segment teeth, breaker bars and wear plate to ensure our customers' mineral sizers stay productive for longer. Offering more than the supply of OEM equivalent sizer segments and components, H-E Parts specializes in;

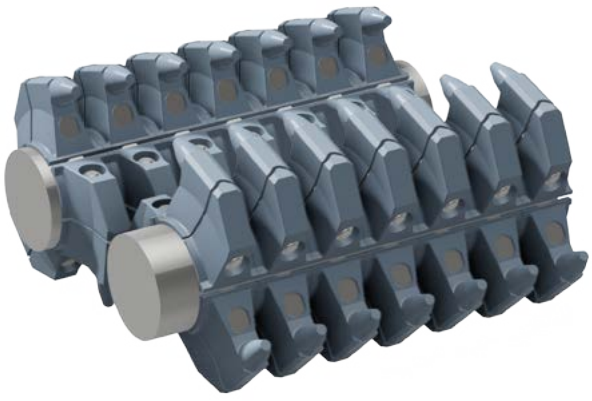
- Improved material composition for extended life.
- Enhanced design elements for increased productivity.
- Re-engineered arrangements for ease of service and changeouts.
- Continual improvement through detailed analysis and design changes.

This allows H-E Parts to not only provide wear management solutions to the global mining, quarrying and minerals processing industries, but tangible total cost of ownership savings. H-E Parts can provide mineral sizer segment teeth and wear components for a variety of brands including; MMD, Abon and Sandvik amongst others.

ENGINEERING & SERVICE SUPPORT

Our in-house engineering capabilities allows H-E Parts to custom-design sizer segment teeth to suit individual applications. H-E Parts has also introduced a range of innovations and material improvements to extend segment life.

H-E Parts off-site repairs (OSR) team are experienced in refurbishments and rebuilds, whilst our on-site service (OSS) teams are skilled in segment installation and change outs.



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

H-E PARTS INTERNATIONAL
CRUSHING SOLUTIONS

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