

# KENRAY®

Perform Better



Services

## KENRAY PACKAGING LAB

Our Packaging Lab gives customers unrivalled insight into how materials behave in real production. We test all critical attributes of packaging films during forming and sealing, including hermeticity and seal strength of finished packs.

With state-of-the-art equipment and fully independent testing, we provide impartial, accurate, and actionable reports.

This knowledge allows our engineering team to design and develop VFFS and HFFS formers from first principles, ensuring high performance even with challenging substrates like paper and sustainable films.

### ANALYTICAL SERVICES AVAILABLE

Alongside our in-house capabilities, we can also arrange a full range of additional analytical tests on film, packages and products through trusted external laboratories. Where external testing is required, we will advise you of the costs and lead times upfront, ensuring you have a clear understanding of the process from the outset.

#### FILM CHARACTERISTICS REPORT

**Method or instrument:** Various

We provide detailed reports on the key measured attributes of your packaging films, giving a clear picture of how they compare to specification and where any performance issues may lie. This analysis helps diagnose problems early and supports informed decisions on material selection and process optimisation.

#### COEFFICIENT OF FRICTION

**Method or instrument:** ASTM D1894-14 (RDM CF800-XS CoF Tester)

We measure the coefficient of friction (CoF) to assess how smoothly a packaging film moves through the forming and sealing process. CoF is a critical indicator of runnability on VFFS and HFFS machinery, and accurate testing helps identify issues such as slipping, sticking or inconsistent film feed before they affect production.

#### PACKET LEAK DETECTION

**Method or instrument:** Burst Force Compression Tester

We assess pack integrity by measuring leak size and locating seal weaknesses within finished packages. This testing confirms whether packs are truly hermetic and helps identify faults that may lead to product spoilage, reduced shelf life or customer complaints.

#### METALLISED FILM OPTICAL DENSITY

**Method or instrument:** Light Transmission Via Techkon T120 Densitometer

We measure the optical density of metallised films to assess their light transmission and potential barrier performance. While it is only one part of the overall barrier picture, optical density can indicate how well a film protects products from oxygen, moisture and light, helping you confirm suitability for your application.

#### HEAT SEAL THRESHOLD

**Method or instrument:** ASTM F2029 (RDM HST3 Heat Seal Tester)

We determine the heat seal threshold to understand the minimum temperature at which a film forms a reliable, consistent seal. This is essential for optimising sealing performance on VFFS and HFFS equipment, particularly for challenging applications such as vertical lap seals and fin seals.

#### REEL HARDNESS

**Method or instrument:** Schmidhammer

We measure reel hardness to identify variations in film winding quality that can affect tension control, tracking and overall machine performance. Understanding reel hardness helps prevent issues such as telescoping, slack edges or inconsistent film feed during production.

#### DRIVE BELT SHORE HARDNESS

**Method or instrument:** Sauter HDA 100-1 Shore 'A' Tester

We test the Shore hardness of drawdown belts to ensure they deliver the correct grip, durability and consistency during film transport. Accurate hardness measurement helps prevent issues such as slippage, uneven pulling or premature belt wear, supporting smooth and reliable machine operation.

#### FILM MICROSCOPE ANALYSIS

**Method or instrument:** 200x Digital Microscope

We inspect films under magnification up to 200x, with full image capture, to examine surface structure and detect defects. This helps identify issues such as coating inconsistencies or contamination that are not visible to the naked eye but can affect forming, sealing and pack performance.

#### THERMAL IMAGING OF HEAT SEAL JAWS

**Method or instrument:** FLIR Thermal Imaging Camera

We use thermal imaging to assess how evenly heat is distributed across seal jaws. Bagmaker and flow wrapper jaws may run hot, but not always uniformly so. Identifying temperature variations, especially cold spots, is key to ensuring consistent seals and maintaining pack hermeticity.

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Telford Way, Stephenson Industrial Estate  
Coalville, Leicestershire LE67 3HE, UK

 [perform@kenrayglobal.com](mailto:perform@kenrayglobal.com)  
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## KENRAY REFURBISHMENTS

Are you experiencing costly downtime from worn forming sets, seal issues, or equipment that's been dropped, knocked, or damaged? Kenray Global's refurbishment services provide a practical and sustainable solution. We specialise in extending the life of your existing forming sets, forming tubes, and frames, ensuring that your operations can keep moving without the need for constant replacements.

Our expertise in full forming sets extends to a variety of components such as flared tube solutions for many different product types, potato snacks, dried or sticky fruit, nuts, vegetables – (broccoli, and cauliflower), gas flushing units, top chutes or integral cones, spreaders both fixed and removable, block bottom attachments as well as PTFE strips.



### COMMON ISSUES WE SOLVE

Packaging operations face unique challenges that can cause downtime, inefficiencies, and inconsistent results. Kenray Global's refurbishment service is specifically designed to address these issues, helping you minimise disruptions and improve operational performance.

#### WORN FORMING SETS

Over time, forming sets can degrade, leading to inconsistent bag shapes and sealing issues. Refurbishing these components restores precision and ensures your production line operates smoothly.

#### SEAL INCONSISTENCIES

Misaligned or worn components often result in faulty seals, wasting materials and time. Our expert team resolves these issues, ensuring strong, reliable seals every time.

#### DAMAGED COMPONENTS

Accidents happen, and dropped or knocked parts can disrupt production. Our refurbishment process repairs structural integrity, re-aligning critical components to deliver optimal performance.



### WHY CHOOSE REFURBISHMENT?

Refurbishment is an effective way to maintain the performance and reliability of your forming sets without the expense of purchasing new ones. As forming sets experience wear and tear over time, refurbishment ensures they continue to meet the high demands of your production line. **Opting for refurbishment offers a range of benefits, including:**

- > **Reduce Costs:** Save up to 50% compared to purchasing new forming sets
- > **Extended Equipment Life:** Keep forming sets running longer, reducing the need for replacements
- > **Minimise Downtime:** Get your equipment back into operation quickly
- > **Support Sustainability:** Reduce waste and your environmental impact

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## KENRAY TRAINING SERVICE

In high-speed packaging environments, efficiency and reliability rely not just on machinery but on the operators, engineers, and production managers who run it. Without the right training, even the most advanced Vertical Form Fill Seal (VFFS) and Horizontal Form Fill Seal (HFFS) machines can suffer from unnecessary downtime, quality issues, and inefficiencies.

At Kenray, we provide specialist training programmes designed to equip your team with the skills and confidence to maintain forming sets, troubleshoot common issues, and optimise packaging performance. Through hands-on learning and expert guidance, we ensure your workforce can keep production lines running smoothly, minimise waste, and improve overall efficiency.

### WHY INVEST IN OPERATOR TRAINING?

Packaging machinery is complex, and without proper training, even the most advanced systems can fall short of their potential. Investing in operator training offers a host of benefits:

#### REDUCE DOWNTIME

Skilled operators can quickly identify and resolve issues, minimising costly interruptions.

#### IMPROVE PRODUCT QUALITY

Properly trained staff ensure consistent output, meeting high-quality standards every time.

#### BOOST EMPLOYEE CONFIDENCE

Well-trained staff work more efficiently and feel empowered to handle complex machinery.

#### ADDRESS COMMON PROBLEMS EFFECTIVELY

From creasing issues to product blockages, Kenray's training covers a wide range of real-world challenges.

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# KENRAY R&D PROCESS

At Kenray, our Research & Development process turns innovative ideas into robust, production-ready forming solutions. We follow a structured yet flexible approach that balances creativity with rigorous testing to deliver measurable outcomes for our customers and for the business.

## OUR PROCESS

Our philosophy is iterative: every prototype and trial feeds back into design. Recent examples include the PTFE Optimised Back Seal (hard back seal with soft-like engagement to mitigate soft-seal detachment risk) and the ongoing Assisted Drop Vertical Forming Set (improving product flow, reducing product-in-seal, and stabilising packs during nitrogen removal).



## BUSINESS VALUE

R&D at Kenray is a growth engine. It delivers tangible, trackable value across revenue, margin, risk, and brand.

<p><b>REVENUE GROWTH &amp; DIFFERENTIATION</b></p> <ul style="list-style-type: none"> <li>• <b>Win new business</b> with demonstrably faster machines and higher seal quality.</li> <li>• <b>Premium pricing</b> for IP-backed forming sets (e.g., PTFE Optimised Back Seal) that solve chronic industry issues.</li> <li>• <b>Market expansion</b> into produce/salad verticals via Assisted Drop solutions.</li> </ul>	<p><b>MARGIN &amp; COST EFFICIENCY</b></p> <ul style="list-style-type: none"> <li>• <b>Reduced downtime:</b> hard back seal design avoids soft-seal migration into product stream and prevents undetected contamination, converting failures into predictable jaw jams that are quicker to resolve.</li> <li>• <b>Lower service burden</b> through more durable components and standardised designs.</li> <li>• <b>Manufacturability:</b> designs optimised for repeatability reduce scrap and rework.</li> </ul>	<p><b>QUALITY, COMPLIANCE &amp; RISK REDUCTION</b></p> <ul style="list-style-type: none"> <li>• <b>Consistent seal integrity</b> across uneven heater bars through maximised contact geometry.</li> <li>• <b>Food safety:</b> minimises risk of foreign body contamination from soft seals and improves detectability.</li> <li>• <b>Regulatory confidence</b> for customers in high-compliance sectors</li> </ul>
<p><b>INTELLECTUAL PROPERTY &amp; DEFENSIBLE ADVANTAGE</b></p> <ul style="list-style-type: none"> <li>• <b>Patentable innovations</b> (e.g., PTFE Optimised Back Seal) create barriers to entry and strengthen negotiations.</li> <li>• <b>Brand authority</b> through documented R&amp;D rigour and published case results.</li> </ul>	<p><b>CUSTOMER RETENTION &amp; LIFETIME VALUE</b></p> <ul style="list-style-type: none"> <li>• <b>Measurable outcomes</b> (higher speeds, fewer end-seal rejects) build trust and lock-in.</li> <li>• <b>Data-driven service:</b> trial data and validation reports become assets for customer QA and continuous improvement.</li> </ul>	

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## KENRAY TECHNICAL SUPPORT

Here at Kenray, we pride ourselves on delivering excellent customer service, and our technical team are no exception. We provide a wide range of support services – from technical assistance over the phone and virtual Teams calls to onsite visits. Our team has vast, wide-ranging applications knowledge and expertise, enabling us to develop innovative ways of problem-solving, achieving your end goals, and supporting your business and production lines.

### THE SERVICES WE OFFER

#### REDUCE DOWNTIME

Comprehensive evaluation of your former fleet, where we see your lines running and assess your fleet operating in a production environment. We etch the sets with unique codes so we can identify them for future reference and provide both a full and summary report with recommendations on how we can improve your fleet and return them to the recommended operating standards. This helps to reduce downtime across your production lines and ensures bag quality is kept to a high standard. Once the report has been sent, we will liaise with you on the recommendations we have identified and work together on booking in the next phase, which is the follow-up to the line evaluation.

#### EXTERNAL REFURBISHMENT / FOLLOW-UP LINE EVALUATION

Whether you have recently had a line evaluation completed or have a number of sets that need refurbishment but cannot be released, our engineers can be scheduled to visit your site to carry out the recommended work. They can fit consumable parts, carry out repairs to formers and tubes, or replace those formers and tubes that are beyond refurbishment. Full RAMS assessments will be completed, and Safe Contractor certification is available.

The final stage of the process, and to maintain the operating levels your fleet is now at, we offer a three-tier service package. This is designed around you and your needs – please see our 'Service Contract' section for more details.

#### INTERNAL REFURBISHMENT

Many of our customers find sending in forming sets for refurbishment extremely beneficial for maintaining their forming fleet all year round. By sending in your set, we will assess and evaluate the work required, provide a comprehensive quote detailing what's needed to bring it up to the required operating standards, and give you a lead time for its return. We will also ensure it is cleaned and polished. We offer a collection and delivery service, making this process as streamlined as possible for you.

#### COMMISSIONING IN SETS

Should you place an order for new forming sets with us, whether it is for one or multiple sets, you can request a quote from one of our highly skilled service engineers to commission the set(s) upon delivery. This ensures a seamless transition to the new set and gives peace of mind.

#### TECHNICAL VISITS / MEETINGS

Whether you have technical issues on a line or require our applications knowledge for a planning meeting, we can offer our expertise by coming to your site and providing assistance or attending a meeting via Teams.

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- > Forming sets & Repairs
  - > Former coatings
- > Horizontal Flow Wrapper Toolings
- > Tube Closers & Product Strippers
  - > Cutting knives
  - > Flexible Chutes
  - > Sealing jaws
  - > Draw-down belts
  - > Former accessories
- > Training & Technical Service



The world's biggest brands and OEMs choose KENRAY formers for better performance and profit.

**Shouldn't you?**

KENRAY are recognised as the global authority on the development and manufacture of formers and solutions for the packaging industry.

Our key area of expertise is the innovative design in forming sets for vertical form fill and seal packaging machines. Renowned for value-added service, consistency of design, extensive testing procedures and accuracy in manufacturing, KENRAY are the partners of choice for companies around the world within the food and pharmaceutical packaging sector.

Our forward-thinking engineering ensures interchangeability and repeatability. It is this precision that continues to endorse KENRAY'S position as the Global Leader in this market today.

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**KENRAY**

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