Plate sealing solutions

Extraction • Sequencing • Genotyping • Extraction • Sequencing • Genotyping • Extraction • Sequencing • Genotyping • Extraction • Sequencing • Genotyping
Introduction

At LGC we know all plate sealers are not the same, we use them everyday. We've been developing and optimising a high-throughput PCR workflow for over ten years in support of our genotyping service, and because we employ water bath thermal cycling, it is critical that we have a highly robust plate sealing solution in place.

Having evaluated a number of commercially available sealing instruments over the years, we unfortunately found none that could effectively meet all our requirements. We turned to our team of instrument design and development engineers to develop a state-of-the-art plate sealing solution that would. Ultimately they produced not just one, but two plate sealing solutions that truly represent the leading edge of plate sealing technology today.

Both our Kube™ heat sealing and Fusion3™ laser sealing instruments are used day-in and day-out by our service labs in North America and Europe, and have enabled tremendous increases in our throughput and productivity. With leading edge capabilities and standards of performance that are second to none, we are confident they can do the same for your lab.

In addition to our instruments, we have also produced our own line of fully skirted 384- and 1536-well PCR microtitre plates that are robotic friendly and designed for optimum sealing. And of course we offer a range a plate sealing films as well, including optically clear films ideal for fluorescent, luminescent, and colorimetric assays, and a host of other films for short and long term storage applications.

Kube - a fully automated heat sealing solution

The Kube automated heat sealing instrument is a versatile instrument that delivers unsurpassed levels of speed, performance, flexibility, and ease-of-use. Controlled through an intuitive on-board touch screen interface, or remotely via an RS 232 connection, the Kube can seal and re-seal a wide range of standard height and deepwell microplates, from 24- to 384-well formats. Also, incorporated in the advanced design of the Kube are many unique features that facilitate ease-of-use and extend performance capabilities beyond that of competing instruments.

Key benefits

- Heat seals a wide range of microplate formats using either singulated seals or a roll of sealing film
- 24- to 384-well polypropylene and polystyrene plates; 9 to 45 mm high
  - Includes 6 plate support adapters and a plate adaptor to support 384-well skirted and semi-skirted plates
  - Optional 96-well adapter for skirted, semi-skirted and unskirted 96-well plates
- Reseals up to 5 times with standard block
  - Typical 6-8 second plate sealing cycle
- Fast sealing time; up to 50 % faster than competing instruments
- Easy to operate: seal rolls loaded by hand – no tools necessary, safely load in external slots
  - do not need to load through heated chamber
- Seal length programmable through the software to support varying application needs
  - Tight-cropped for automated processing; overhanging tab for manual peeling, etc.
- Automation friendly – easily integrated into fully automated systems
  - RS232 controllable, low height profile, stacker compatible
  - Presents plates in either portrait or landscape orientation
- Small footprint conserves valuable bench space
- Loads a 265 mm diameter roll of sealing film
Our patented Fusion\(^3\) plate sealer\(^1\) is a fully automated benchtop instrument that uses a directed laser beam to quickly "fuse" seals on to flat-top microplates. It has the flexibility and precision to seal plate densities from single well reservoirs to 3456-well format. The Fusion\(^3\) utilises a 50 x 976 nm laser mounted to an XY robot. End users can easily program the desired welding pattern through an intuitive on-board control interface, or remotely via an RS232 connection.

Designed to work in combination with the Kube heat sealer the Fusion\(^3\) laser plate sealer has the ability to hermetically seal high density microplates with great reliability, including 1536-well plates, and can reseal plates up to 50 times or more. The laser directs its energy to just a thin 80 µm line in between wells, making the Fusion\(^3\) ideal for working with sensitive, heat-labile samples as no heat is passed to the sample. (Note: due to the physics of the laser fusion process, the Fusion\(^3\) is limited to sealing either clear sealing film onto opaque black polypropylene (PP) or polystyrene (PS) plates. We can apply black DMSO resistant peel seal film onto Cyclic Olefin (COC) or PS clear and white plates. In all cases the plates must have flat top surfaces - no chimneys. See sealing film cross reference chart for further information.)

\(^1\) Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

### Key benefits
- Seals high density flat top microplates perfectly – every well, every time!
- No heat passed to the sample; ideal for heat-labile samples
- Robotic friendly; RS 232 interface with front plate load
- Fast sealing time: typically 10-20 seconds for 384-well plates and 20-30 seconds for 1536-well plates
- Plates can be sealed and re-sealed up to 50 times or more (seal dependent)
- Uses single sheets or a 265 mm diameter film-roll with a capacity of >4,000 seals, both initially prealigned using the Kube heat sealer

### Part number | Description | Quantity | Sealer
---|---|---|---
KBS-0612-001 | Polypropylene Vision Film | 750 m x 78 mm reel | Fusion\(^3\)
KBS-0612-003 | Polypropylene Vision Film | 100 sheet pack | Fusion\(^3\)

For genotyping work done in our service labs we use opaque black versions of the 384- and 1536-well PCR plates, where reaction volumes are miniaturised to 5 µL and 1 µL respectively. The opaque black material prevents fluorescent signal from carrying over into adjacent wells and is required when sealing with the Fusion\(^3\) laser sealing instrument. To facilitate sample management and tracking, all our standard PCR plates are pre-barcoded with identical barcodes affixed to both the portrait and landscape side of each plate. Custom barcoded plates are available upon request.

### Key benefits
- Flat top surface for optimal sealing
- Automation friendly design
- SBS footprint
- Tight control on flatness and dimensional accuracy
- Available in opaque black
- Pre-barcoded with custom barcoding available upon request
- Easy removal of seals for post-PCR plate processing (seal dependant)

### Compatibility
- All 384- and 1536-well PCR plates compatible with water bath thermal cycling
- V-shaped wells ensure good thermal conduction
- Opaque black plates compatible with Fusion\(^3\) laser sealing instruments
Ordering information

The standard black 384- and 1536-well PCR plates compatible with the Fusion³ are presented in the table below.

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
<th>Quantity</th>
<th>Sealer</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBS-0750-031</td>
<td>384-well plate black landscape twin barcode</td>
<td>Box of 20</td>
<td>Fusion³/Kube</td>
</tr>
<tr>
<td>KBS-0750-001</td>
<td>384-well plate black, landscape barcode</td>
<td>Box of 20</td>
<td>Fusion³/Kube</td>
</tr>
<tr>
<td>KBS-0751-021</td>
<td>1536-well plate v2, ASHD, single barcode</td>
<td>Box of 20</td>
<td>Fusion³</td>
</tr>
<tr>
<td>KBS-0751-022</td>
<td>1536-well plate v2, ASHD, double barcode</td>
<td>Box of 20</td>
<td>Fusion³</td>
</tr>
</tbody>
</table>

Note: all plates are pre-barcoded with either a single barcode on the landscape side, or two identical barcodes affixed to both the landscape and portrait sides of the plate. Standard barcode numbers are guaranteed never to repeat. Custom barcoding available upon request.

Additional 96-well and 384-well plates compatible with the Kube sealer include those listed below. Additional plates may be available; please contact your LGC representative or LGC Customer Service.

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
<th>Quantity</th>
<th>Sealer</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBS-0600-011</td>
<td>Adhesive clear seals qPCR, roll, portrait</td>
<td>200 m x 78 mm roll</td>
<td></td>
</tr>
<tr>
<td>KBS-0619-001</td>
<td>Adhesive foil piercable solvent resistant</td>
<td>100 Pack (125 x 78 mm)</td>
<td></td>
</tr>
<tr>
<td>KBS-0618-001</td>
<td>Adhesive microplate seals, individual seals</td>
<td>100 Pack (125 x 78 mm)</td>
<td></td>
</tr>
<tr>
<td>KBS-0608-002</td>
<td>Adhesive PCR film</td>
<td>100 Pack (125 x 78 mm)</td>
<td></td>
</tr>
<tr>
<td>KBS-0601-001</td>
<td>Adhesive PCR film, roll, portrait</td>
<td>200 m x 78 mm roll</td>
<td></td>
</tr>
<tr>
<td>KBS-0600-002</td>
<td>Adhesive PCR foil, individual sheets</td>
<td>100 Pack (125 x 78 mm)</td>
<td></td>
</tr>
<tr>
<td>KBS-0620-001</td>
<td>Adhesive seal gas permeable cuts sheets (100)</td>
<td>Please contact us for more information</td>
<td></td>
</tr>
</tbody>
</table>

Adhesive plate seals

The following seals are available for manual application.

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBS-0607-002</td>
<td>Clear seal</td>
<td>125 mm x 78 mm</td>
</tr>
<tr>
<td>KBS-0608-001</td>
<td>Clear seal 3700</td>
<td>125 mm x 78 mm</td>
</tr>
<tr>
<td>KBS-0607-001</td>
<td>Clear seal</td>
<td>300 m x 115 mm</td>
</tr>
<tr>
<td>KBS-0605-001</td>
<td>Clear seal</td>
<td>350 m x 115 mm</td>
</tr>
<tr>
<td>KBS-0604-001</td>
<td>Clear seal</td>
<td>500 m x 78 mm</td>
</tr>
<tr>
<td>KBS-0603-004</td>
<td>Clear seal</td>
<td>500 m x 115 mm</td>
</tr>
<tr>
<td>KBS-0603-005</td>
<td>Clear seal</td>
<td>610 m x 78 mm</td>
</tr>
<tr>
<td>KBS-0603-009</td>
<td>Clear seal</td>
<td>300 m x 78 mm</td>
</tr>
<tr>
<td>KBS-0601-005</td>
<td>Clear seal</td>
<td>500 m x 78 mm</td>
</tr>
<tr>
<td>KBS-0601-006</td>
<td>Clear seal</td>
<td>500 m x 115 mm</td>
</tr>
<tr>
<td>KBS-0601-007</td>
<td>Clear seal</td>
<td>610 m x 78 mm</td>
</tr>
<tr>
<td>KBS-0601-008</td>
<td>Clear seal</td>
<td>300 m x 78 mm</td>
</tr>
</tbody>
</table>

Adhesive clear seals (0.85 mm thick) come in rolls of various lengths:
- 125 mm x 78 mm roll
- 300 m x 115 mm
- 350 m x 115 mm
- 500 m x 78 mm
- 500 m x 115 mm
- 610 m x 78 mm
- 300 m x 78 mm

Contact your LGC representative or LGC Customer Service for more information on our complete range of seals and plates.
Genomics - products and services

Services

- KASP™ SNP and InDel genotyping
- DNA and RNA extraction services
- Sanger sequencing
- Next-generation sequencing services (Illumina HiSeq and MiSeq)
- Whole Genome Amplification (WGA)

Products

- KASP SNP and InDel genotyping chemistry
- Dual-labeled BHQ® probes, BHQplus® probes and BHQnova™ probes
- DNA extraction products (sbeadex™, Kleargene™ and mag™ kits)
- Enzymes and PCR reagents (KlearKall™, KlearTaq™ and KlearTaq™ HiFi)
- Whole Genome Amplification (WGA) kits and services
- Microtitre plates and seals for heat or laser sealing (96, 384 and 1536)
- SNPline PCR workflow instrumentation:
  - Plate heat sealers (Kube™)
  - Plate laser sealer (Fusion³™)
  - Thermal cycling instrument (Hydrocycler²™)
  - Assay dispensing system (Meridian²™)
  - Software (SNPviewer™, KlusterCaller™ and Kraken™)
  - DNA extraction instruments (oKtopure™ and Genespin™)
  - DNA plate replicating instruments (repliKator™ and K-pette)
  - Plate readers (FLUOstar® Omega and PHERAstar® Plus)
- Integrated PCR and qPCR instrument (IntelliQube®)
- Integrated liquid handling and assay processing (Nexar® System)
- Fluorescent detection system (Araya®)
- High-capacity thermal cycler (Soellex® 2.0)
- Array Tape® consumable and cover seal
- Array Tape software (Intellics® and IntelliScore®)
- Diagenode shearing solutions (Bioruptor® Pico, Bioruptor Plus, Megaruptor®, Diagenode One, and IP-Star®)

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Science for a safer world