



Plate sealing solutions from **LGC Genomics**



Introduction

At LGC Genomics 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.

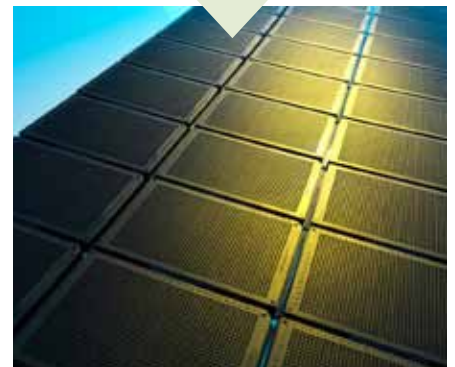
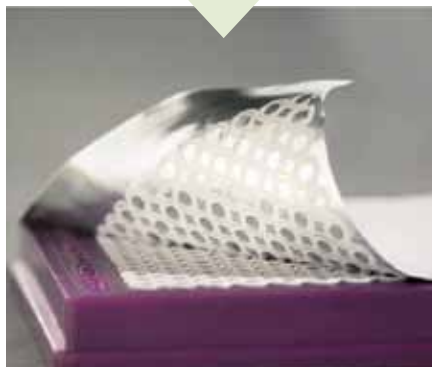
Both our **Kube™** heat sealing and **Fusion3™** laser sealing instruments are used day-in and day-out by our service labs in North America and Europe, and have enabled tremendous increases in our throughput and productivity. With leading edge capabilities and standards of performance that are second 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 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.

Instruments

Seals

Plates



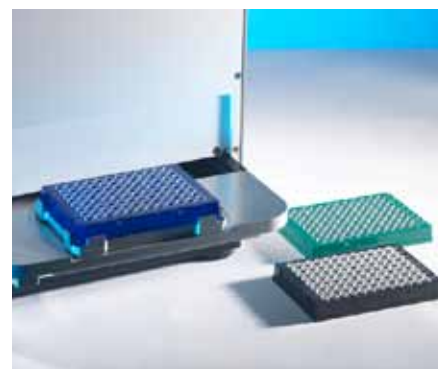
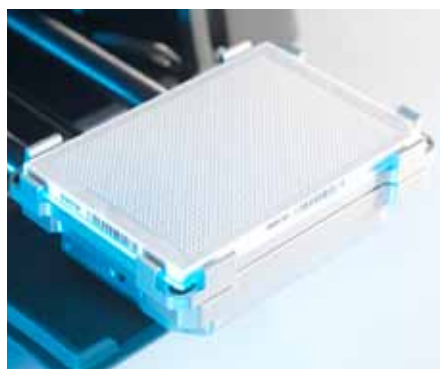
Kube™ - a fully automated heat sealing solution



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
- 24- 384 well polypropylene and polystyrene plates; 9 to 48mm high
- Reseals up to 5 times with standard block, and up to 25 times with Flexiblock™ option
- Fast sealing time; up to 50% faster than competing instruments
- Easy to operate; seal rolls loaded by hand – no tools necessary
- Seal length programmable through the software to support varying application needs
 - Tight-cropped for automated processing; overhanging tab for manual peeling, etc.
- Robotic 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



Fusion3™ – patented laser sealing technology

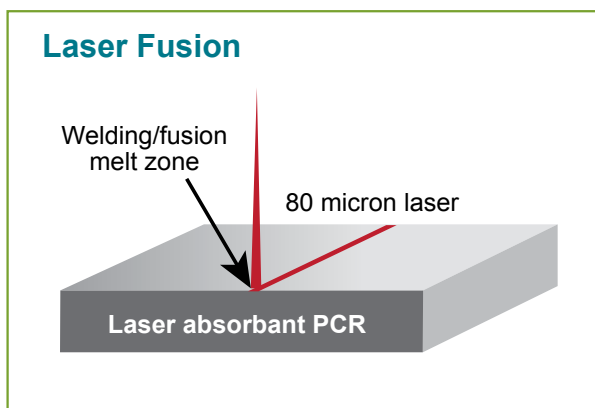


Our patented Fusion3 plate sealer is a fully automated benchtop instrument that uses a directed laser beam to quickly “fuse” seals on to flat-top microplates. It has the flexibility and precision to seal plate densities from single well reservoirs to 3456-well format. The Fusion3 utilizes a 40w 888nm 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 Fusion3 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 Fusion3 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 Fusion3 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.)

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 plate and 20 - 30 seconds for 1536-well plate
- Plates can be sealed and re-sealed up to 50 times or more!
- Loads a 300 mm diameter roll of sealing film.



384 & 1536-well flat top PCR plates optimum performance

Our service labs at LGC Genomics utilise a high throughput PCR workflow that generates upwards of one million genotyping data points per day for customers the world over. To streamline our workflow and enhance productivity even further, we designed our own automation friendly 384 and 1536-well PCR plates with flat top surfaces to facilitate optimum sealing with both heat and adhesive seals (The flat top surface increases adherence of adhesive plate seals when compared to other PCR plates with raised rims, or “chimneys” around each well).

To ensure the physical integrity of every well and consistent performance overall, we subject every plate to 100% leak testing using electrostatic and pressure techniques, and samples from every lot are inspected for flatness and dimensional accuracy, and are functionally validated using a panel of standard KASP™ genotyping assays.

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 Fusion3 laser sealing instrument. Opaque white and clear versions of these plates are available to support alternative PCR applications. 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 clear, opaque black, and opaque white versions
- Pre-barcoded with custom barcoding available upon request
- Easy removal of seals for post-PCR plate processing (film 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 laser sealing instruments



Ordering information

The standard 384 and 1536-well PCR plates we offer are listed below:

Part Number	Description	Quantity	Sealer
KBS-0750-001	384-well plate black pre-barcoded	Box of 20	Fusion/Kube
KBS-0750-004	384-well plate white pre-barcoded	Box of 20	Kube
KBS-0750-0071	384-well plate clear pre-barcoded	Box of 20	Kube
KBS-0751-001	1536-well plate black pre-barcoded	Box of 20	Fusion
KBS-0751-004	1536-well plate white pre-barcoded	Box of 20	Kube
KBS-0751-007	1536-well plate clear pre-barcoded	Box of 20	Kube









Note: all plates are pre-barcoded with 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.

Adhesive plate seals

Part number	Description	Sealer
KBS-0600-011	Adhesive clear seals QPCR	200m x 78mm roll
KBS-0619-001	Adhesive Foil Piercable Solvent Resistant	100 Pack (125x78mm)
KBS-0618-001	Adhesive Microplate seals	100 Pack (125x78mm)
KBS-0606-002	Adhesive PCR Film	100 Pack (125x78mm)
KBS-0606-001	Adhesive PCR Film	200m x 78mm roll
KBS-0600-002	Adhesive PCR Foil	100 Pack (125x78mm)
KBS-0620-001	Adhesive Seal Gas Permeable Cuts Sheets (100)	Please contact



Example seal selection guide

Products	 Clear Seal 3730	 Clear Seal	 Super Optic Version 2	 Foil Seal	 DMSO Resistant Peel Seal	 Peel Seal	 Pierce Seal	 Thermal Bond
Description	Clear polymer. Seals to Polypropylene, Polystyrene, Polyethylene and Cyclic Olefin Copolymer. Good optical clarity, some solvent resistance.	Clear polymer film forming a peelable seal to Polypropylene, Polyethylene, Cyclic Olefin Copolymer plates. Good optical clarity. Moderate solvent resistance.	Clear polymer film forming a permanent seal to Polypropylene that can not be peeled and is difficult to pierce. Good optical clarity and solvent resistance.	Heat seal to polypropylene and polystyrene plates that can be pierced with a tip or peeled off by hand. Good solvent resistance including DMSO. Resealing onto existing seal is possible. A colour print identifies the non-sealing surface.	Identical sealing characteristics to Peel Seal but with a high resistance to solvents even at elevated temperatures. Excellent seal on COC plates.	This popular laminate material gives a peelable heat seal to Polypropylene plates. Can be peeled directly from -80°C freezer. Good barrier to aqueous solutions. Moderate resistance to solvents at room temperature.	Foil based material. Heat seals to polypropylene plates and polystyrene plates. Very good solvent resistance including DMSO. Seals can be applied on top of each other allowing multiple access/resealing of samples. A colour print identifies the non-sealing surface.	Heavy duty laminate material that seals to Polypropylene to give a very strong peelable seal. High degree of sample protection. Good solvent resistance including DMSO.
Application	Recommended for use with the ABI 3730 Sequencer as the thinner structure pierces more easily.	qPCR, short term compound storage.	PCR, especially water bath thermal cyclers, qPCR Storage and disposal of hazardous materials. Sample inspection. Recommended for use with DMSO.	Low temperature compound storage, short term room temperature compound storage, PCR.	Both low temperature and room temperature compound storage with DMSO and other organic solvents.	Low temperature, compound storage, short term room temperature compound storage.	PCR, compound storage, sample shipping.	Long term storage including storage and transportation at low temperature PCR, especially water bath cyclers. Storage of organic solvents, acids and alkalines.
Seal integrity	-80°C to 80°C or 110°C with pressurised PCR heated lids.	-80°C to 80°C or 110°C with pressurised PCR heated lids.	-80°C to 110°C	-20°C to 110°C	-80°C to 80°C	-80°C to 110°C	-20°C to 120°C	-200°C to 110°C
Pierceable	✓	✓	X	✓	X	X	✓	X
Peelable	X	X	X	✓	✓	✓	X	✓
Sterile	X	X	X	X	X	X	X	X
Dimensions	610m x 78mm	500m x 78mm 125mm x 78mm 350m x 115mm	610m x 78mm 500m x 115mm	125mmx78mm	500m x 78mm 500m x 115mm 125mm x 78mm	610m x 78mm 500m x 115mm 125mm x 78mm	610m x 78mm 125mm x 78mm 500m x 115mm	500m x 78mm 300m x 115mm 125mm x 78mm
Catalogue number	KBS-0608-001	KBS-0605-001 KBS-0605-004 KBS-0605-005	KBS-0607-002 KBS-0607-003	KBS-0604-001 KBS-0604-001	KBS-0611-001 KBS-0611-003 KBS-0611-005	KBS-0601-001 KBS-0601-005 KBS-0601-006	KBS-0603-001 KBS-0603-004 KBS-0603-005	KBS-0609-001 KBS-0609-004 KBS-0609-005

(1) For further information on our complete range of seals and plates contact our customer service team.

LGC Genomics products and services overview

KASP™ genotyping chemistry

Sanger sequencing

NextGen sequencing services (*Roche 454, Illumina HiSeq*)

DNA and RNA extraction services

DNA extraction products (sbeadex®, Kleargene™ and mag™ kits)

Enzymes and PCR reagents (KlearKall™, KlearTaq™, KlearTaq™ HiFi)

Whole Genome Amplification (WGA) kits and services

DNA shearing instruments (*Covaris*)

Microtitre plate (MTP) heat sealers (Kube™)

MTP laser sealer (Fusion3™)

Thermal cycling instruments (Hydrocycler™)

Assay dispensing systems (Meridian)

MTPs and seals for heat and laser sealing (96, 384 & 1536)

Software (SNPviewer™, KlusterCaller™, Kraken™)

DNA extraction instruments (oKtopure™)

DNA MTP replicating robot (repliKator™)

For more details please contact your local representative or visit our website.



www.lgcgenomics.com

LGC Genomics Germany

Ostendstr. 25 • TGS Haus 8
12459 Berlin

Tel: +49 (0)30 5304 2200
Fax: +49 (0)30 5304 2201
Email: info.de@lgcgenomics.com

United Kingdom

Unit 1-2 Trident Industrial Estate • Pindar Road
Hoddesdon • Herts • EN11 0WZ

Tel: +44 (0) 1992 470757
Fax +44 (0) 1438 900670
Email: info.uk@lgcgenomics.com

USA

100 Cummings Center • Suite 420H
Beverly • MA 01915

Tel: +1 (978) 232 9430
Fax: +1 (978) 232 9435
Email: info.us@lgcgenomics.com